

FIG. 1a

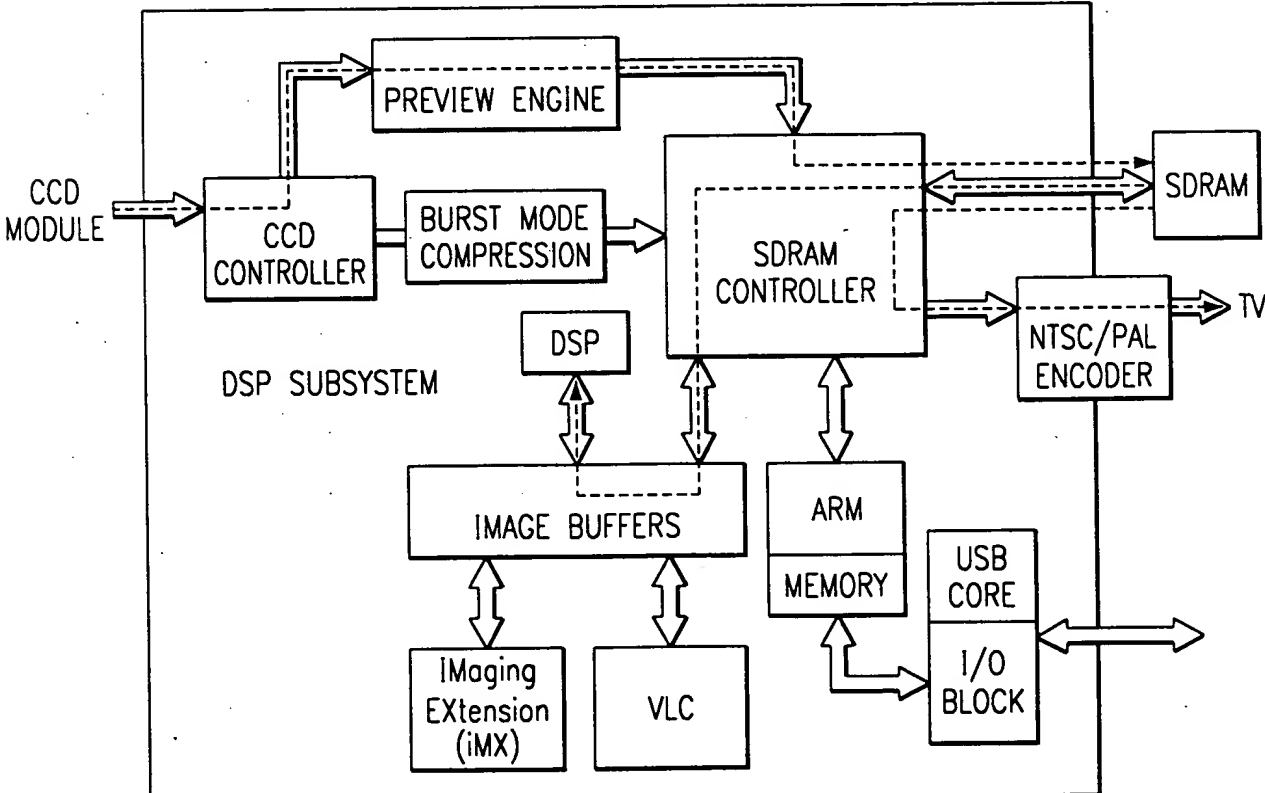


FIG. 2

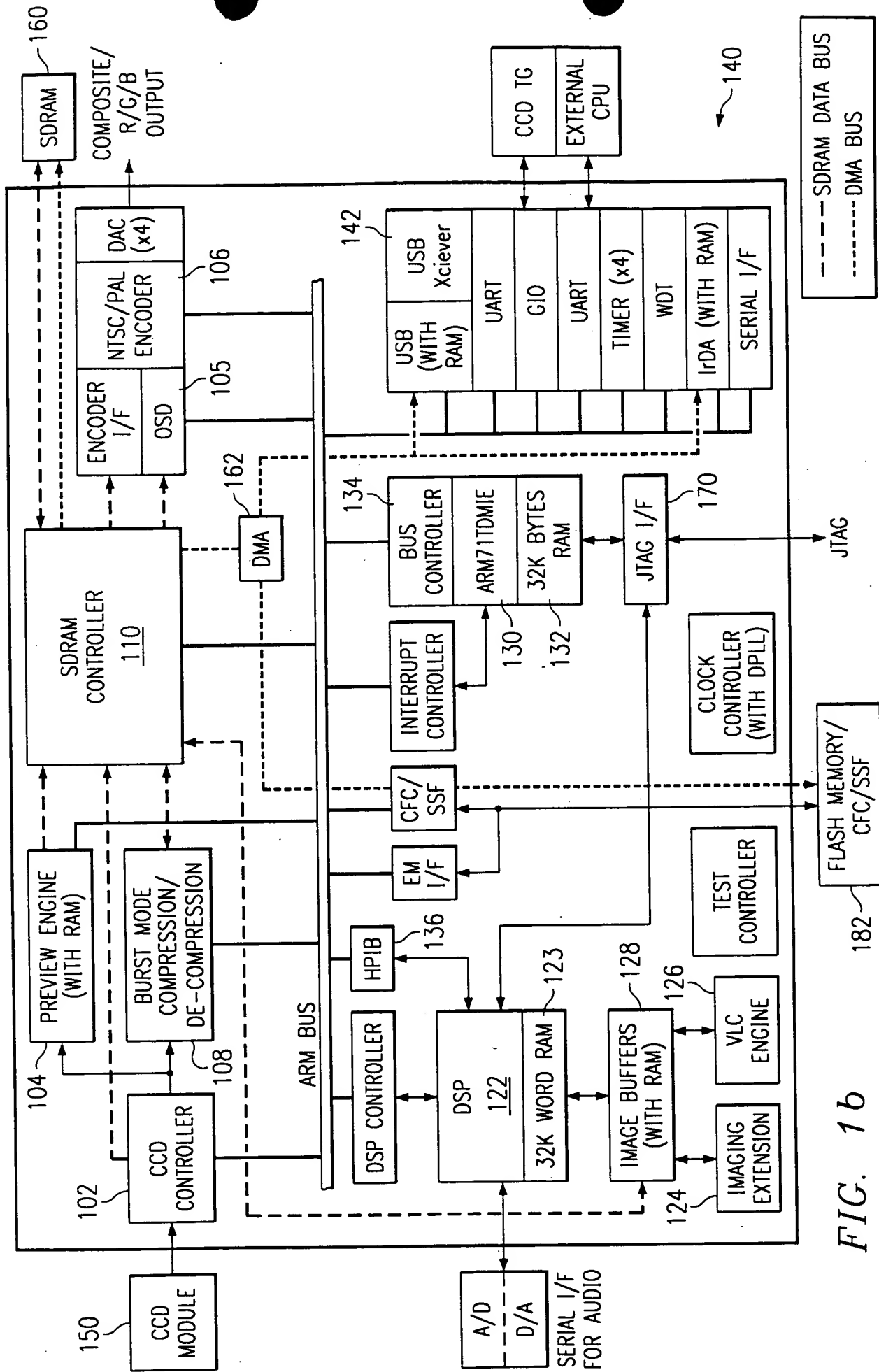


FIG. 1b

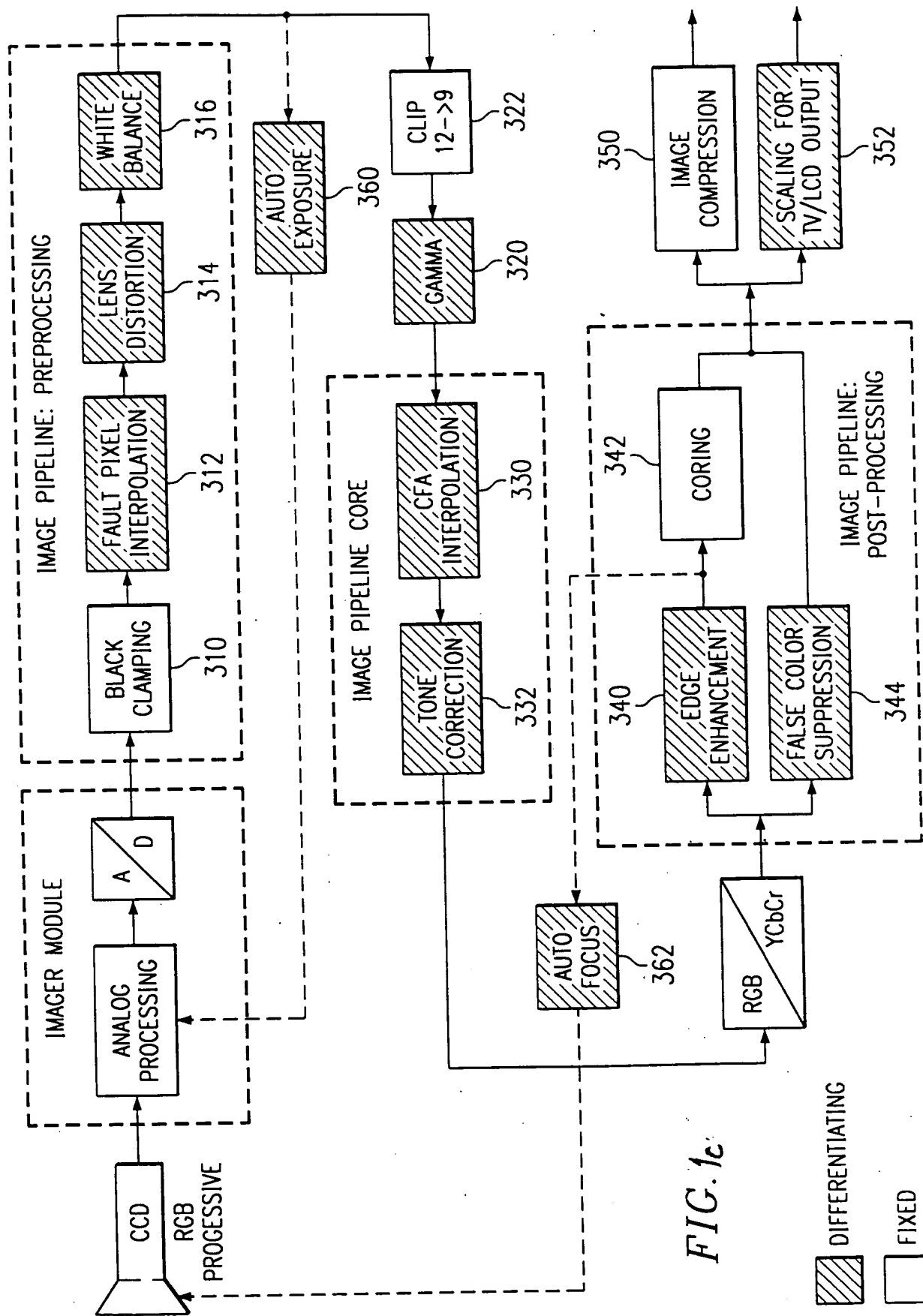


FIG. 1c

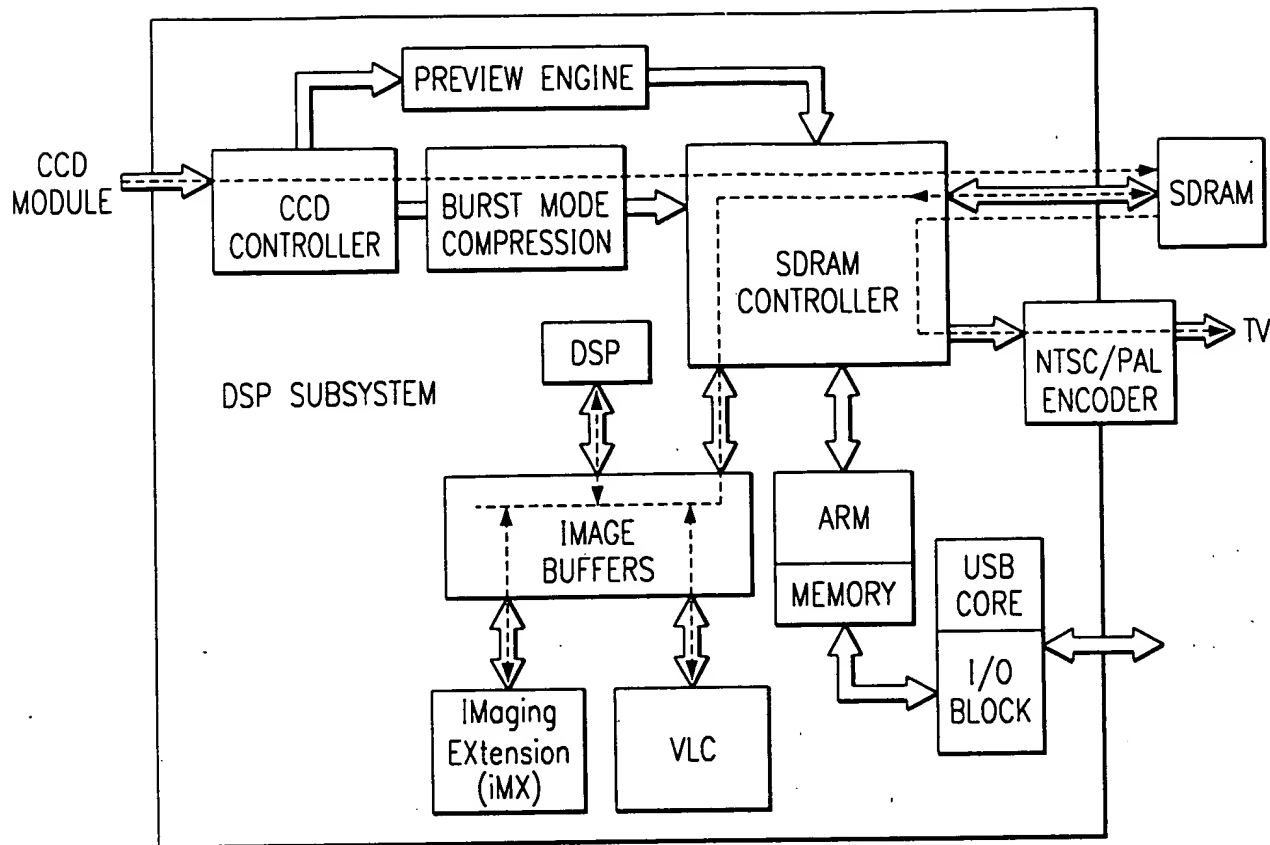


FIG. 3a

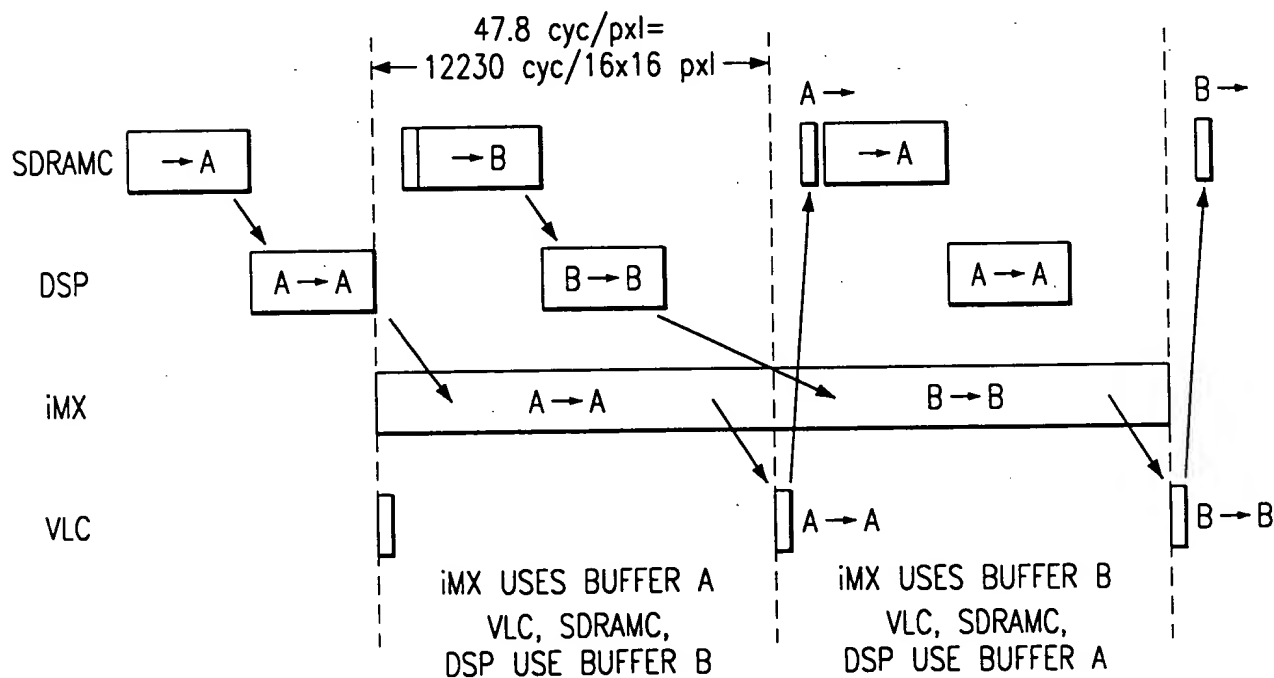


FIG. 3b

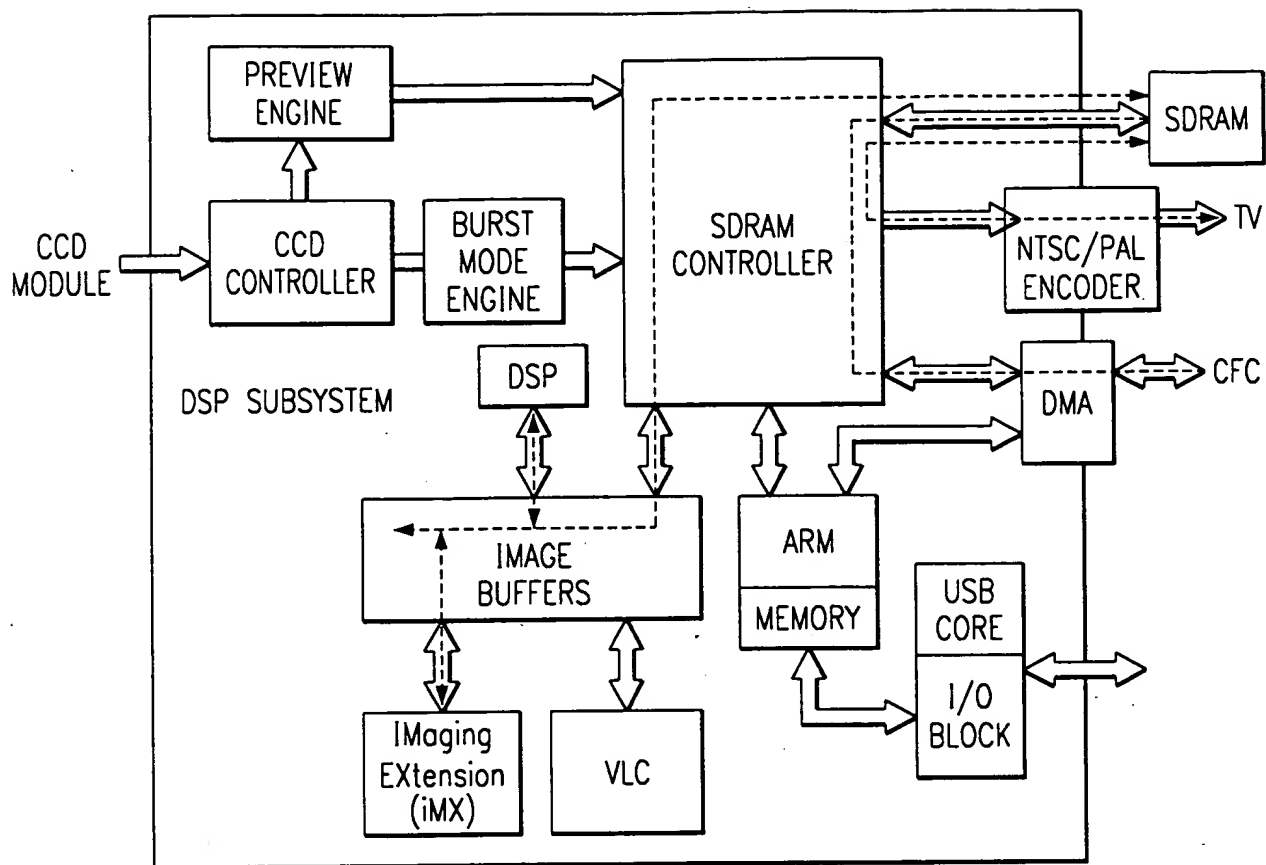


FIG. 4

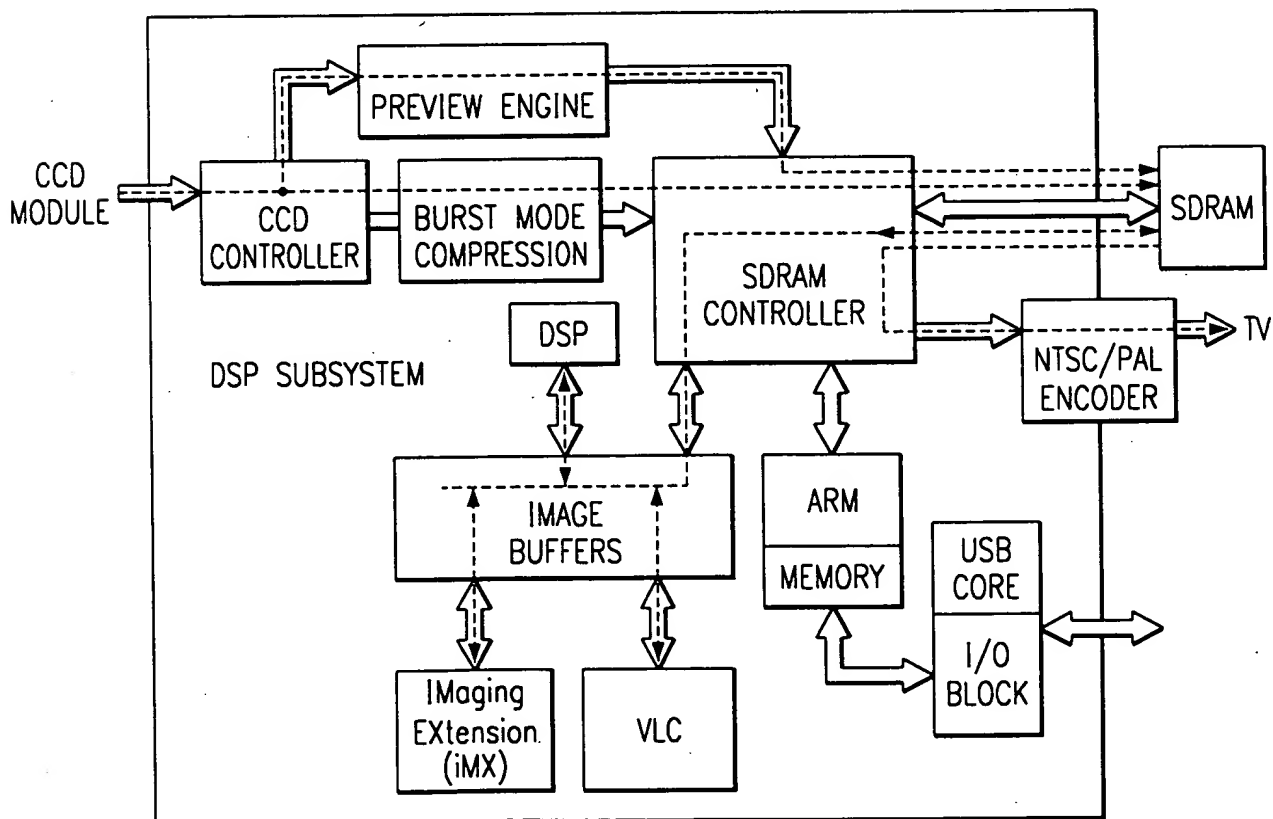


FIG. 5

09745432-122000

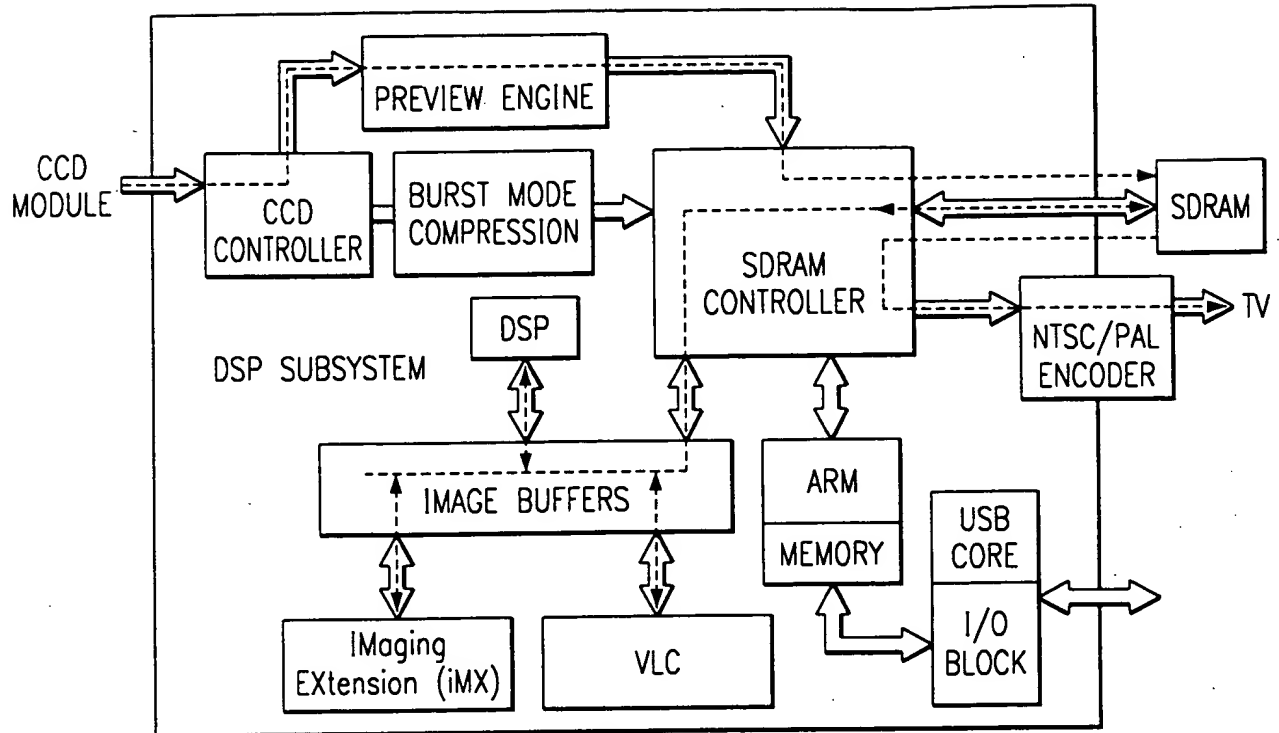


FIG. 6

R	G	R	G
G	B	G	B
R	G	R	G
G	B	G	B

FIG. 7a

Ye	Cy	Ye	Cy
G	Mg	G	Mg
Ye	Cy	Ye	Cy
G	Mg	G	Mg

FIG. 7b

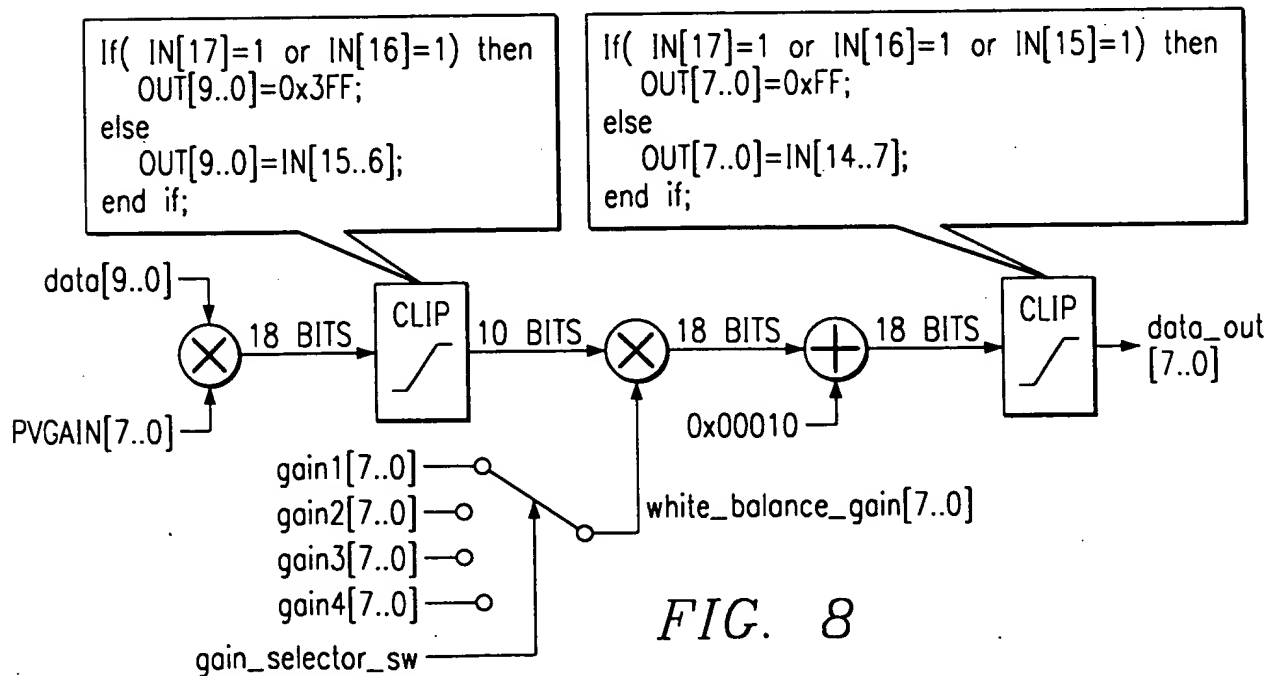


FIG. 8

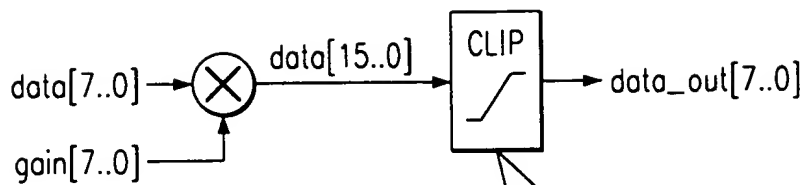


FIG. 9a

If(  $data[15]=1$  or  $data[14]=1$  ) then  
 $data\_out=0xFF$ ;  
 else  
 $data\_out=data[13..6]$ ;  
 end if;

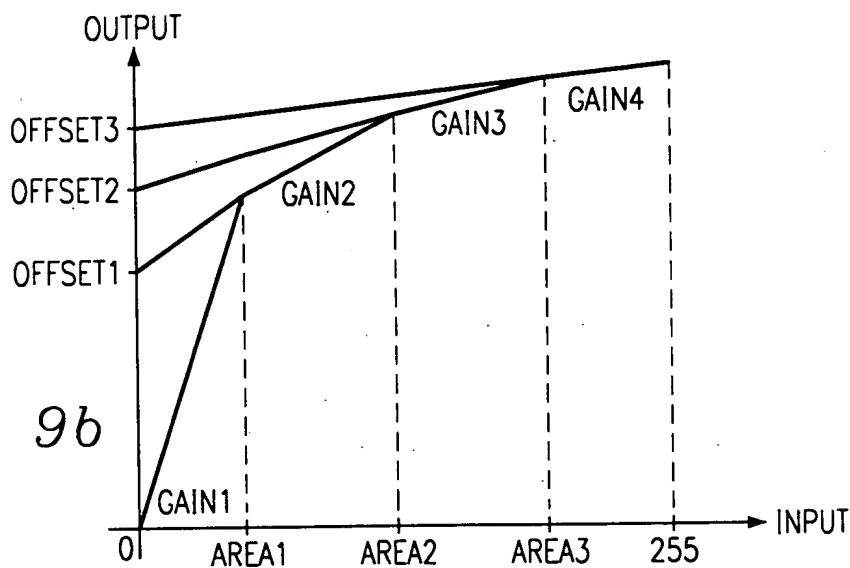


FIG. 9b

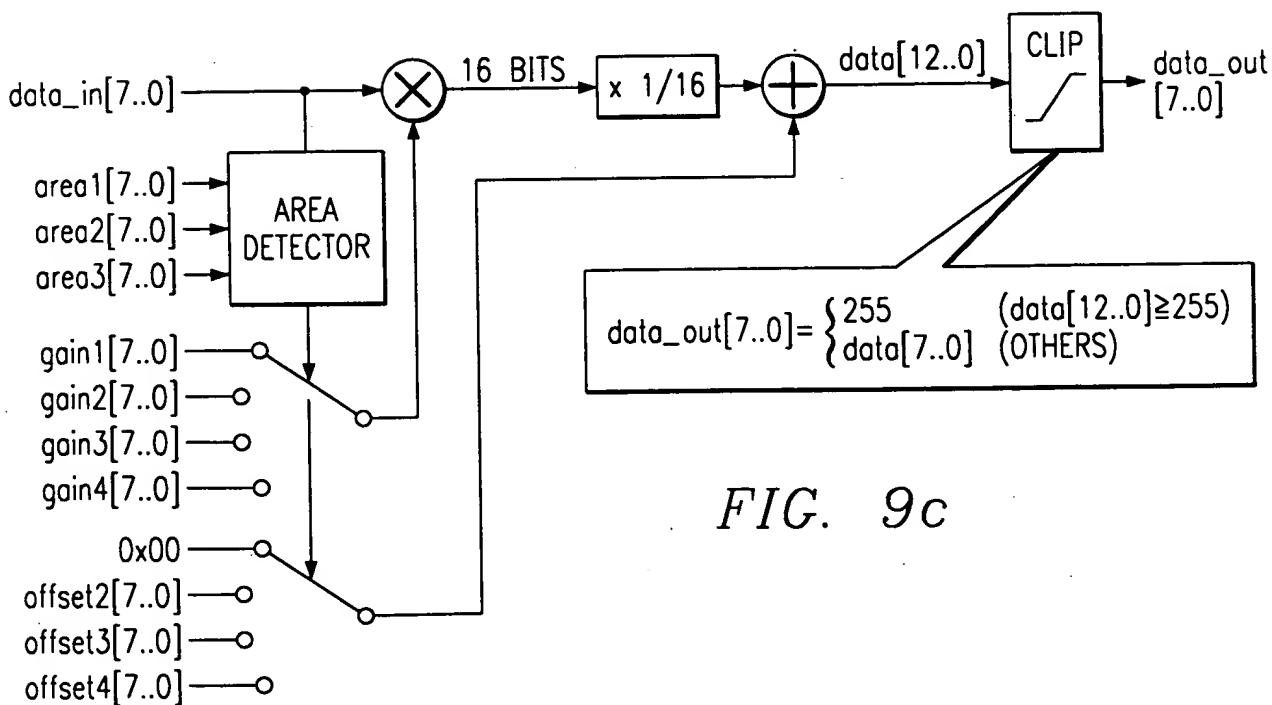
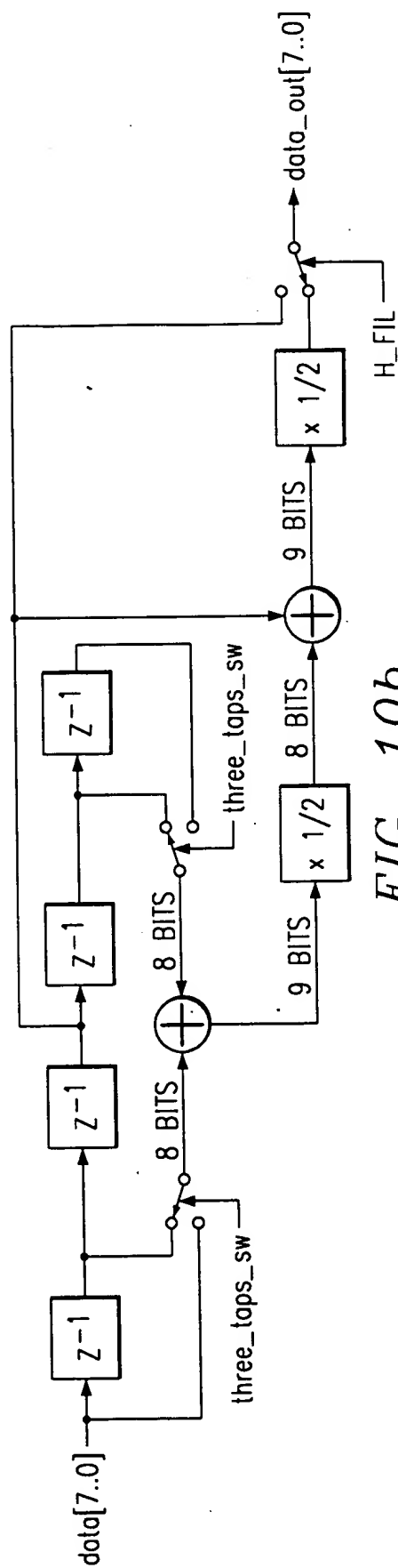
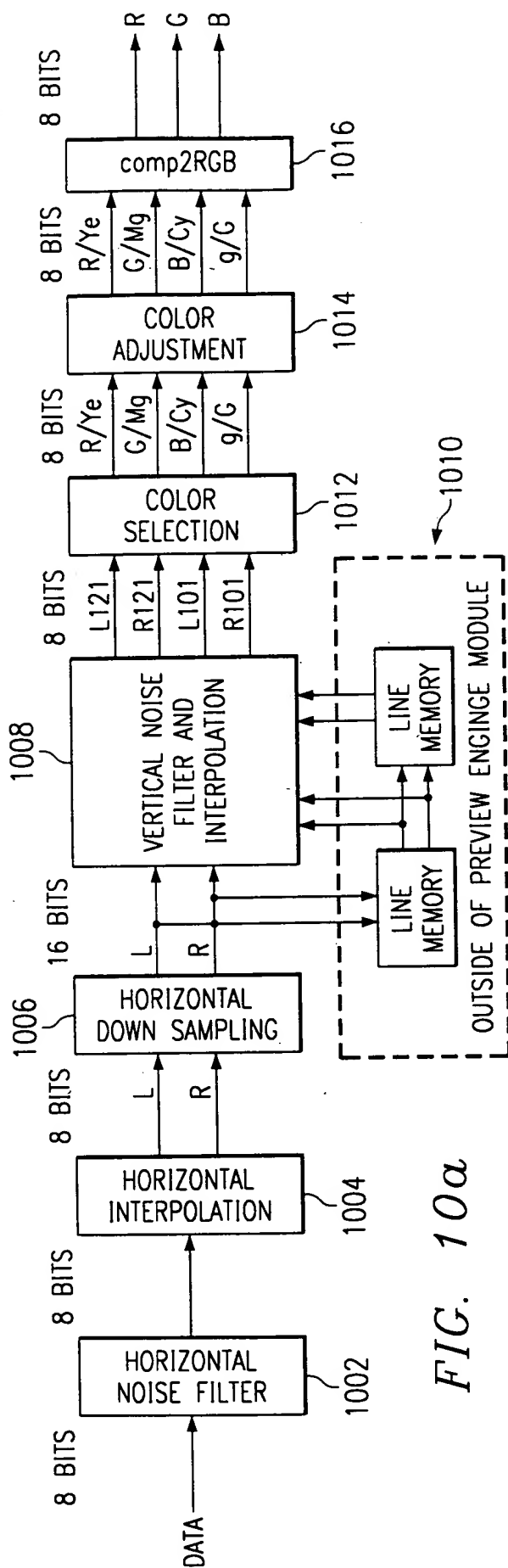
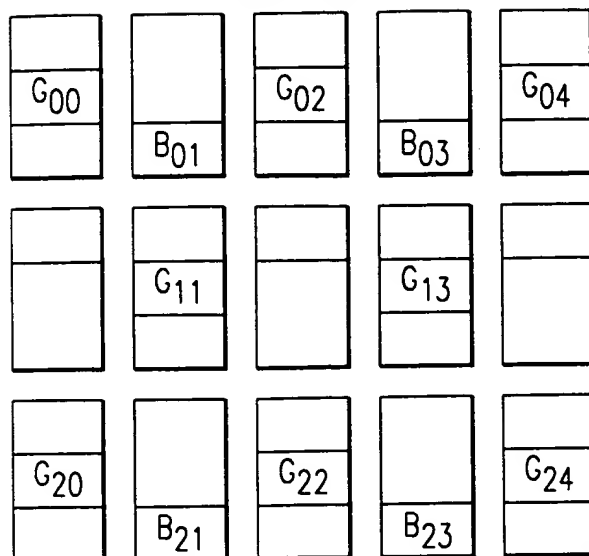
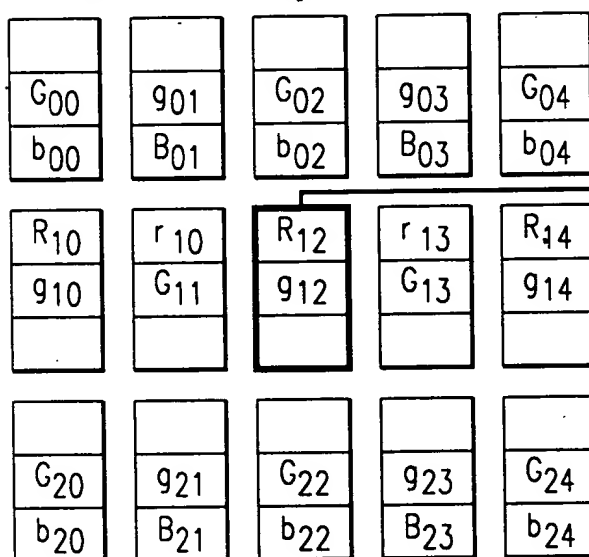


FIG. 9c





RAW DATA

HORIZONTAL  
INTERPOLATION

NORMAL MODE

$$g_{12} = \frac{-R_{10} + 2G_{11} + 2R_{12} + 2G_{13} - R_{14}}{4}$$

SIMPLE MODE

$$g_{12} = \frac{G_{11} + G_{13}}{2}$$

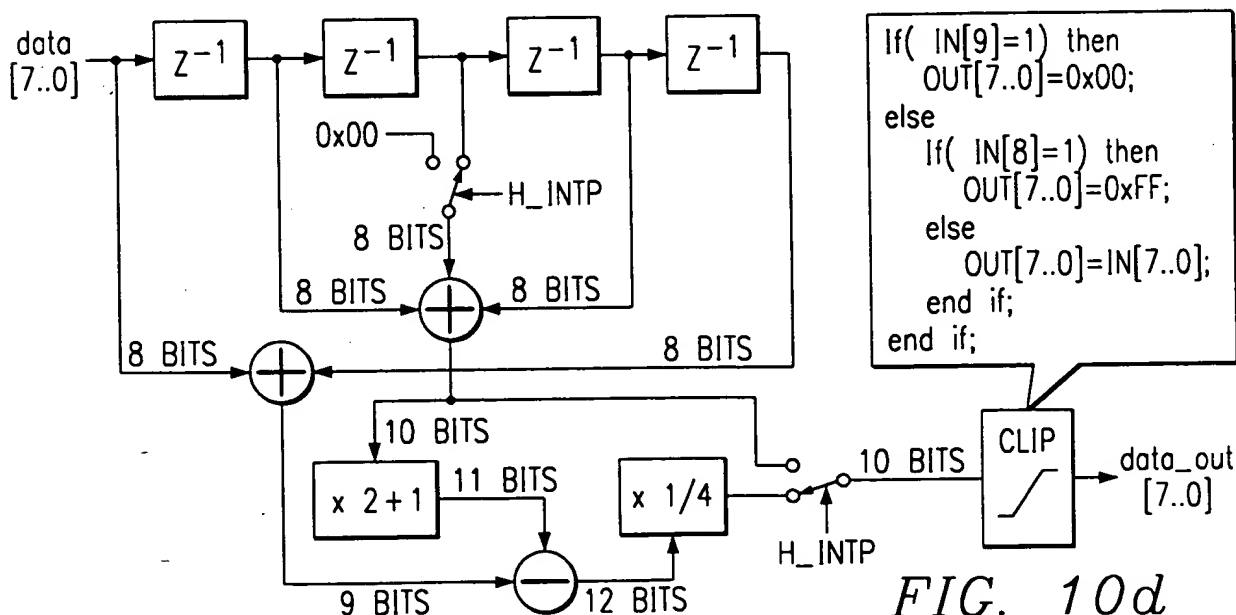


FIG. 10d

## OUTPUT OF HORIZONTAL INTERPOLATION

g <sub>01</sub>	G <sub>02</sub>	g <sub>03</sub>
B <sub>01</sub>	b <sub>02</sub>	B <sub>03</sub>

r <sub>11</sub>	R <sub>12</sub>	r <sub>13</sub>
G <sub>11</sub>	g <sub>12</sub>	G <sub>13</sub>

g <sub>21</sub>	g <sub>22</sub>	g <sub>23</sub>
B <sub>21</sub>	B <sub>22</sub>	B <sub>23</sub>

VERTICAL INTERPOLATION ↓

r <sub>01</sub>	r <sub>02</sub>	r <sub>03</sub>
g <sub>01</sub>	G <sub>02</sub>	g <sub>03</sub>
B <sub>01</sub>	b <sub>02</sub>	B <sub>03</sub>

$$b_{12} = \frac{b_{02} + b_{22}}{2}$$

r <sub>11</sub>	R <sub>12</sub>	r <sub>13</sub>
G <sub>11</sub>	g <sub>12</sub>	G <sub>13</sub>
b <sub>11</sub>	b <sub>12</sub>	b <sub>13</sub>

SIMPLE MODE

r <sub>21</sub>	r <sub>22</sub>	r <sub>23</sub>
g <sub>21</sub>	g <sub>22</sub>	g <sub>23</sub>
B <sub>21</sub>	B <sub>22</sub>	B <sub>23</sub>

COLOR ADJUSTMENT (NORMAL MODE) ↓

$\overline{r}_{01}$	$\overline{r}_{02}$	$\overline{r}_{03}$
g <sub>01</sub>	G <sub>02</sub>	g <sub>03</sub>
B <sub>01</sub>	b <sub>02</sub>	B <sub>03</sub>

$$\overline{b}_{12} = \frac{b_{02} - G_{02} + b_{22} - G_{22}}{2} - g_{12}$$

r <sub>11</sub>	R <sub>12</sub>	r <sub>13</sub>
G <sub>11</sub>	g <sub>12</sub>	G <sub>13</sub>
$\overline{b}_{11}$	$\overline{b}_{12}$	$\overline{b}_{13}$

r <sub>01</sub>	R <sub>02</sub>	r <sub>03</sub>
g <sub>01</sub>	G <sub>02</sub>	g <sub>03</sub>
B <sub>01</sub>	b <sub>02</sub>	B <sub>03</sub>

r <sub>11</sub>	R <sub>12</sub>	r <sub>13</sub>
G <sub>11</sub>	g <sub>12</sub>	G <sub>13</sub>
B <sub>11</sub>	b <sub>12</sub>	B <sub>13</sub>

$\overline{r}_{21}$	$\overline{r}_{22}$	$\overline{r}_{23}$
g <sub>21</sub>	g <sub>22</sub>	g <sub>23</sub>
B <sub>21</sub>	B <sub>22</sub>	B <sub>23</sub>

r <sub>21</sub>	R <sub>22</sub>	r <sub>23</sub>
g <sub>21</sub>	g <sub>22</sub>	g <sub>23</sub>
B <sub>21</sub>	B <sub>22</sub>	B <sub>23</sub>

FIG. 10e

## OUTPUT OF HORIZONTAL INTERPOLATION

Ye00	cy00	ye01	Cy01	Ye02	cy02
G10	mg00	g11	Mg11	G12	mg12
Ye20	cy20	ye21	Cy21	Ye22	cy22

VERTICAL  
INTERPOLATION

Ye00	cy00	ye01	Cy01	Ye02	cy02
g00	mg00	g01	mg01	g02	mg02
ye10	cy10	ye11	cy11	ye12	cy12
G10	mg10	g11	Mg11	G12	mg12
Ye20	cy20	ye21	Cy21	Ye22	cy22
g20	mg20	g21	mg21	g22	mg22

$$ye_{11} = \frac{ye_{01} + ye_{21}}{2}$$

$$cy_{11} = \frac{Cy_{01} + Cy_{21}}{2}$$

## SIMPLE MODE

COLOR ADJUSTMENT  
(NORMAL MODE)

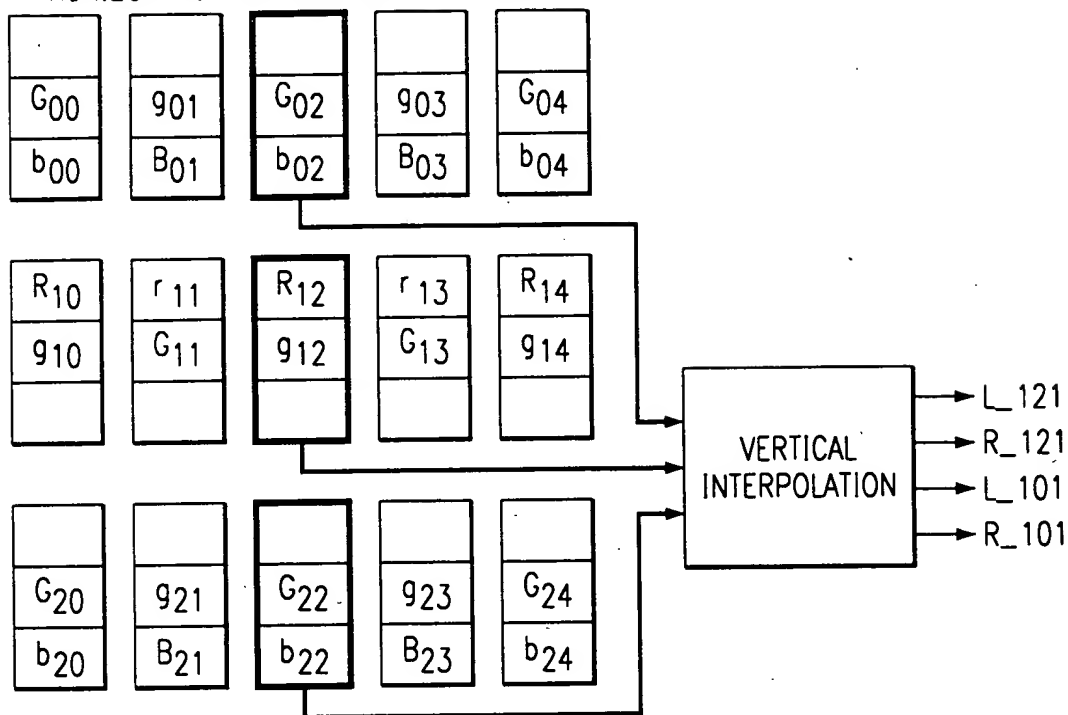
$\overline{ye_{00}}$	$\overline{cy_{00}}$	$\overline{ye_{01}}$	$\overline{cy_{01}}$	$\overline{ye_{02}}$	$\overline{cy_{02}}$	ye00	cy00	ye01	Cy01	Ye02	cy02
$\overline{g_{00}}$	$\overline{mg_{00}}$	$\overline{g_{01}}$	$\overline{mg_{01}}$	$\overline{g_{02}}$	$\overline{mg_{02}}$	g00	mg00	g01	mg01	g02	mg02
$\overline{ye_{10}}$	$\overline{cy_{10}}$	$\overline{ye_{11}}$	$\overline{cy_{11}}$	$\overline{ye_{12}}$	$\overline{cy_{12}}$	ye10	cy10	ye11	cy11	ye12	cy12
$\overline{g_{10}}$	$\overline{mg_{10}}$	$\overline{g_{11}}$	$\overline{mg_{11}}$	$\overline{g_{12}}$	$\overline{mg_{12}}$	G10	mg10	g11	Mg11	G12	mg12
$\overline{ye_{20}}$	$\overline{cy_{20}}$	$\overline{ye_{21}}$	$\overline{cy_{21}}$	$\overline{ye_{22}}$	$\overline{cy_{22}}$	Ye20	cy20	ye21	Cy21	Ye22	cy22
$\overline{g_{20}}$	$\overline{mg_{20}}$	$\overline{g_{21}}$	$\overline{mg_{21}}$	$\overline{g_{22}}$	$\overline{mg_{22}}$	g20	mg20	g21	mg21	g22	mg22

$$a = g_{11} + Mg_{11} - ye_{11} - cy_{11}$$

$$\left\{ \begin{array}{l} \overline{ye_{11}} = ye_{11} + \frac{a}{4} \\ \overline{cy_{11}} = cy_{11} + \frac{a}{4} \\ \overline{g_{11}} = g_{11} - \frac{a}{4} \\ \overline{mg_{11}} = Mg_{11} - \frac{a}{4} \end{array} \right.$$

FIG. 10f

### HORIZONTAL INTERPOLATION OUTPUTS



NOISE FILTER = OFF

$$\left. \begin{aligned} L_{121} &= R_{12} \\ R_{121} &= g_{12} \\ L_{101} &= \frac{G_{02} + G_{22}}{2} \\ R_{101} &= \frac{b_{02} + b_{22}}{2} \end{aligned} \right\}$$

NOISE FILTER = ON

$$\left. \begin{aligned} L_{121} &= R_{12} - g_{12} + \frac{G_{02} + 2g_{12} + G_{22}}{4} \\ R_{121} &= \frac{G_{02} + 2g_{12} + G_{22}}{4} \\ L_{101} &= \frac{G_{02} + G_{22}}{2} \\ R_{101} &= \frac{b_{02} + b_{22}}{2} \end{aligned} \right\}$$

FIG. 10g

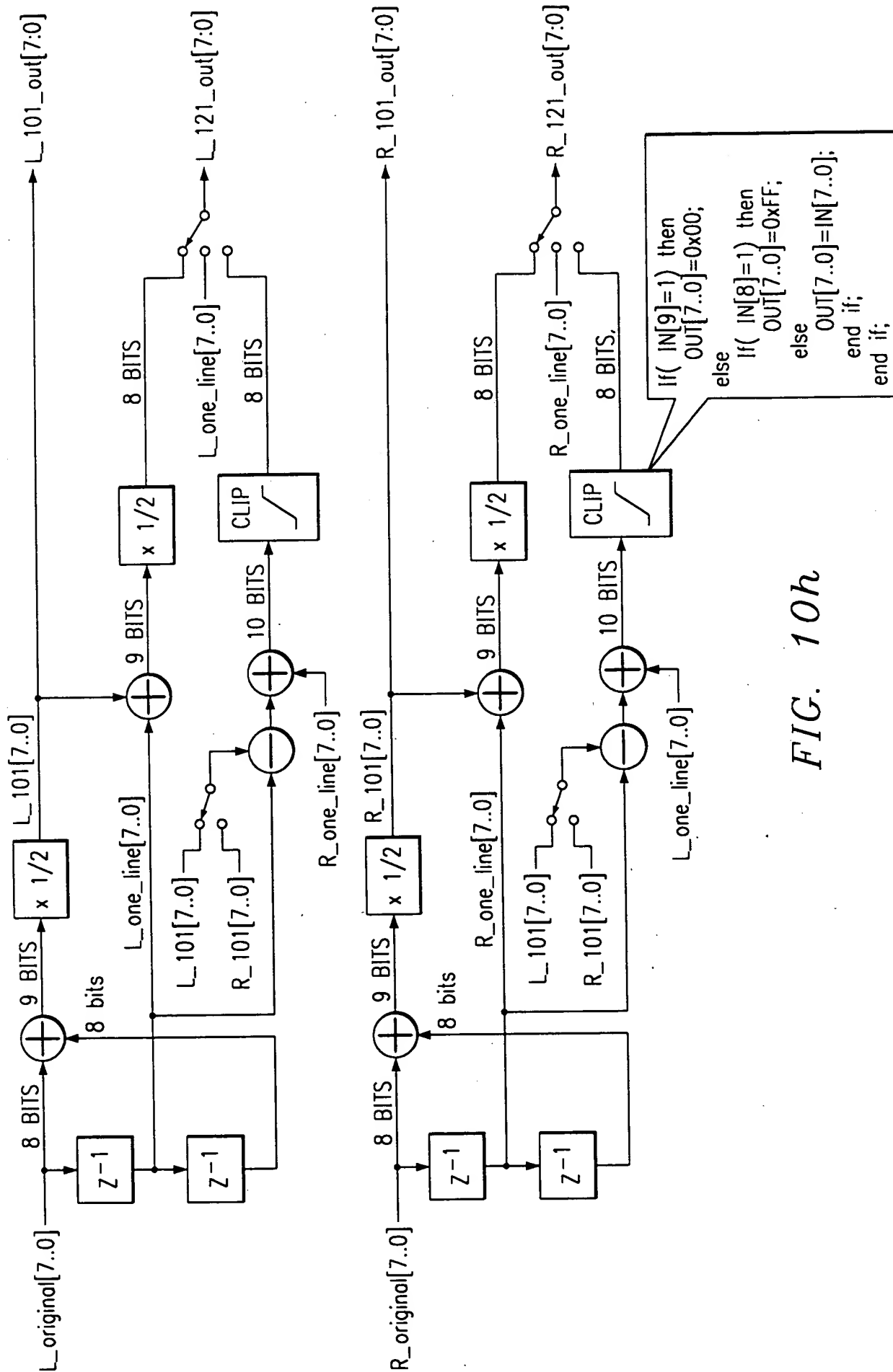


FIG. 10h



$$\left\{ \begin{array}{l} R/Ye = R_{12} - g_{12} + \frac{G_{02} + 2g_{12} + G_{22}}{4} \\ G/Mg = \frac{G_{02} + 2g_{12} + G_{22}}{4} \\ g/Cy = \frac{G_{02} + G_{22}}{2} \\ B/Cy = \frac{b_{02} + b_{22}}{2} \end{array} \right.$$

FIG. 10j

The diagram illustrates a color processing system with four parallel processing channels. Each channel consists of a 'COLOR EXTRACTOR' block. The inputs to these blocks are a common 'cfa\_pattern' signal and four color signals: left\_101, right\_101, left\_121, and right\_121. The outputs of the color extractors are labeled R/Ye, B/Cy, G/Mg, and g/G.

FIG. 10j

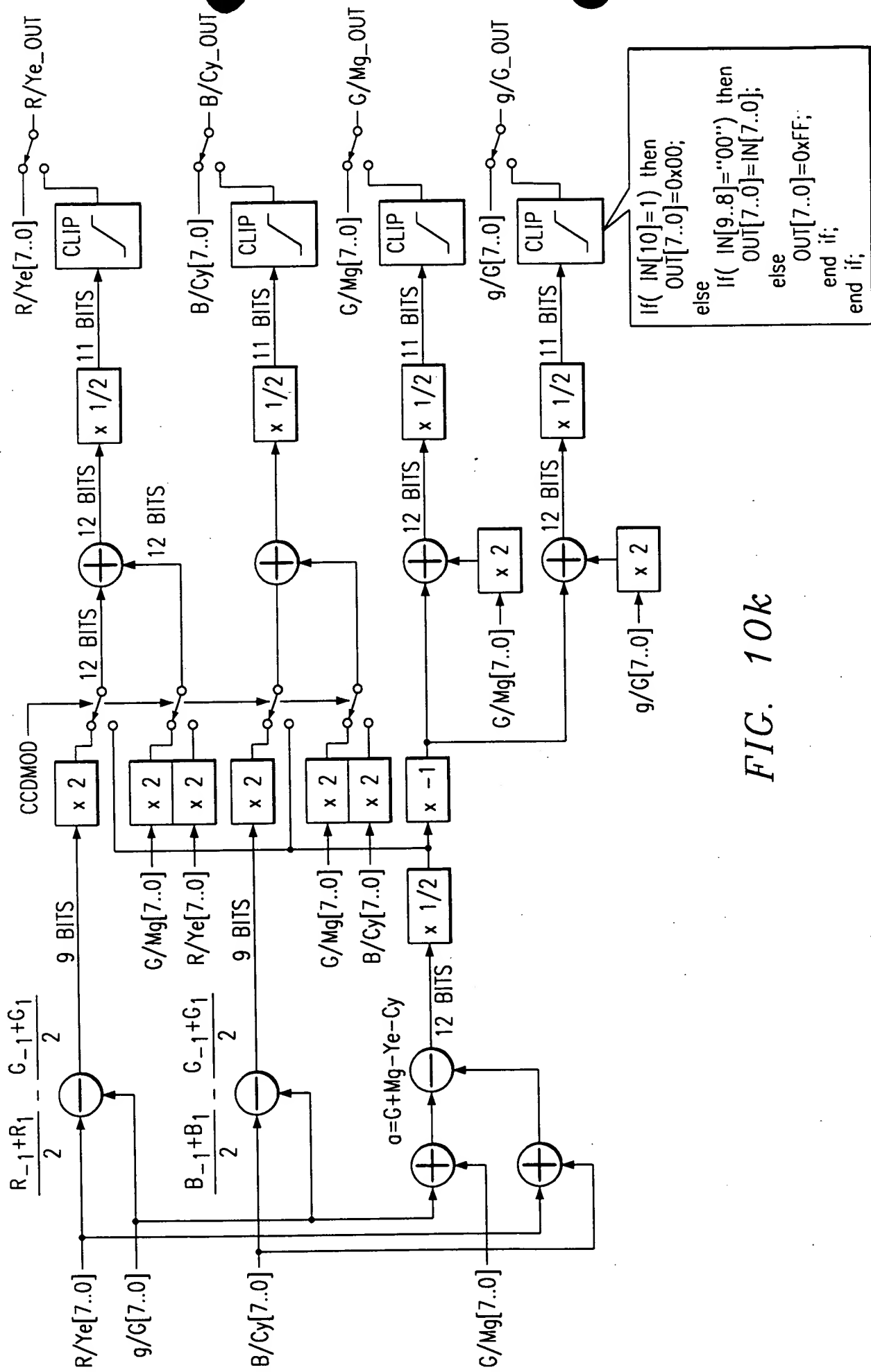


FIG. 10k

160637

000237" 2674260

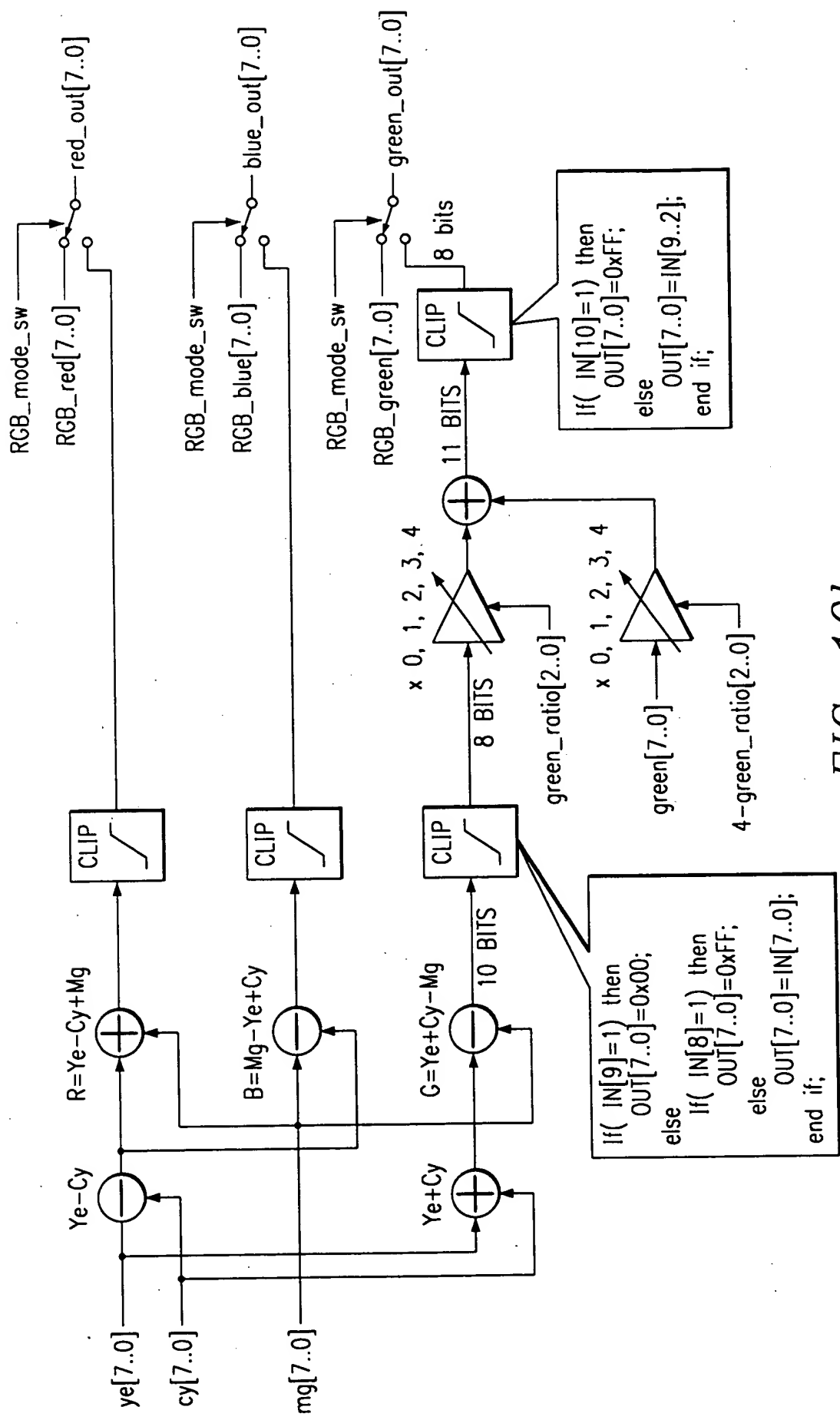


FIG. 10L



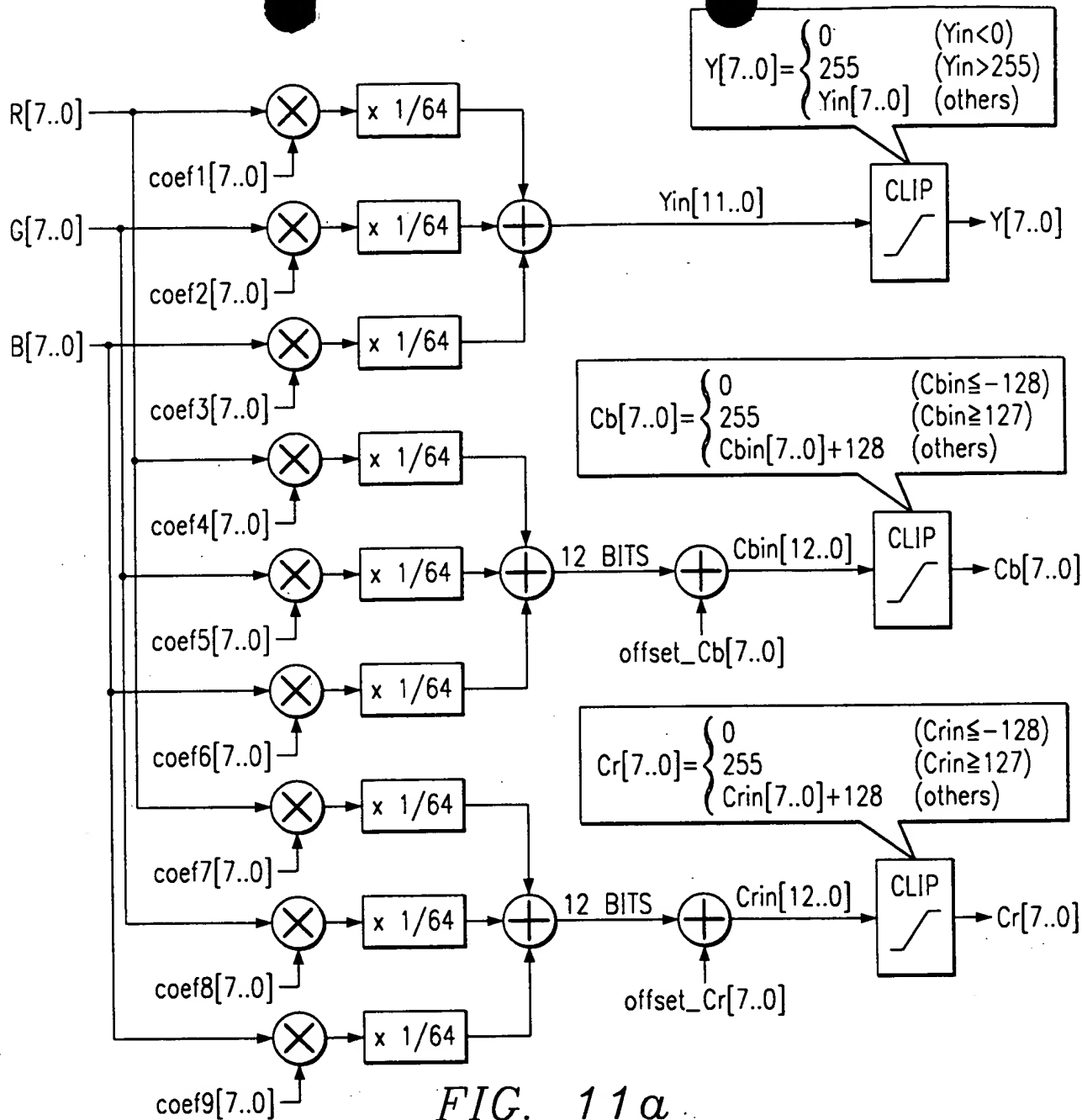


FIG. 11a

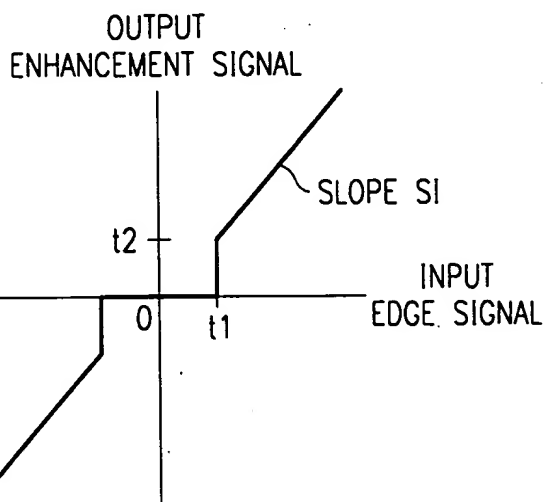


FIG. 11b

FIG. 12a

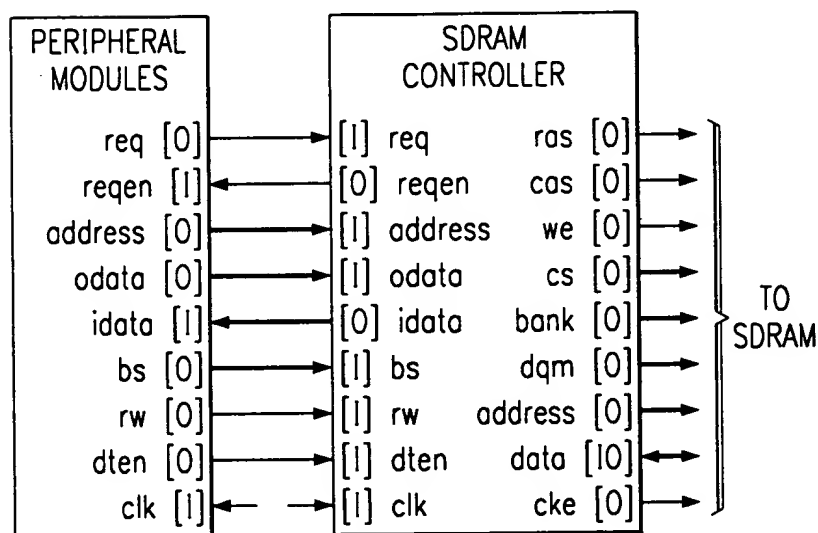
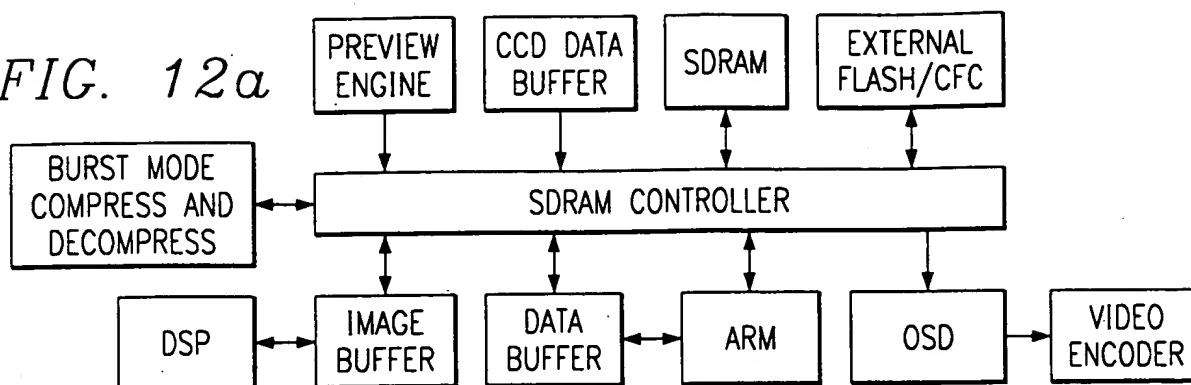


FIG. 12b

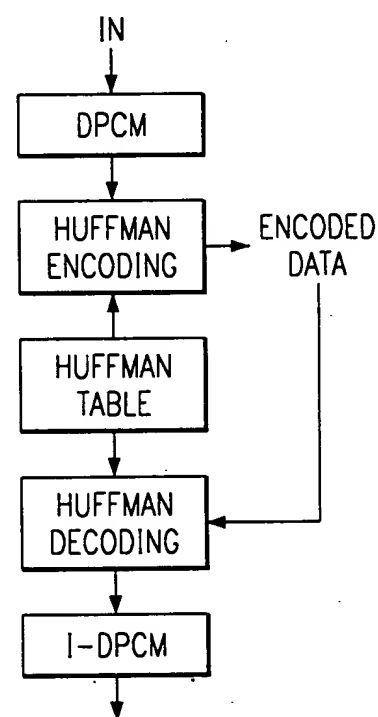


FIG. 13b

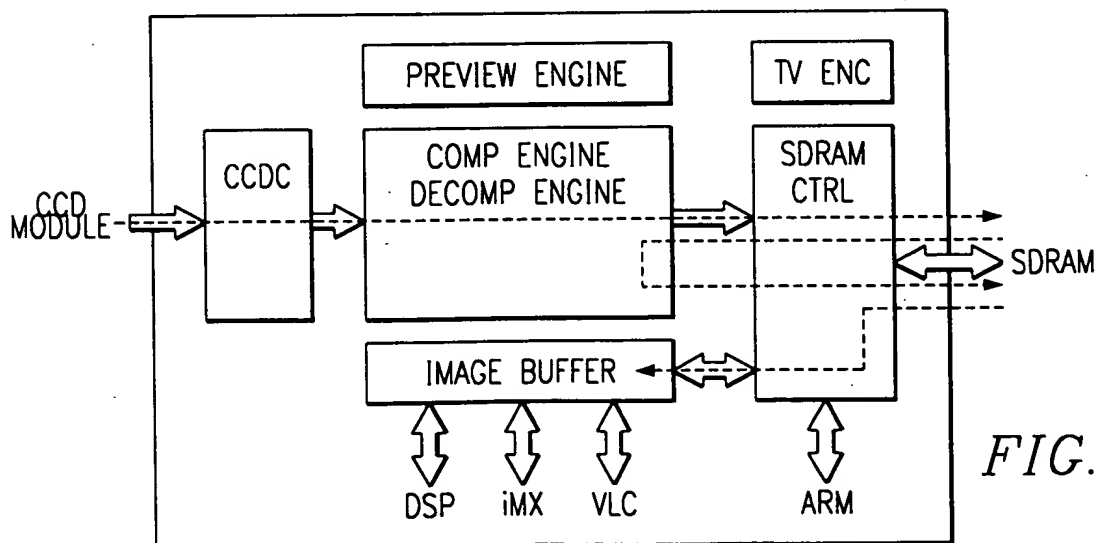
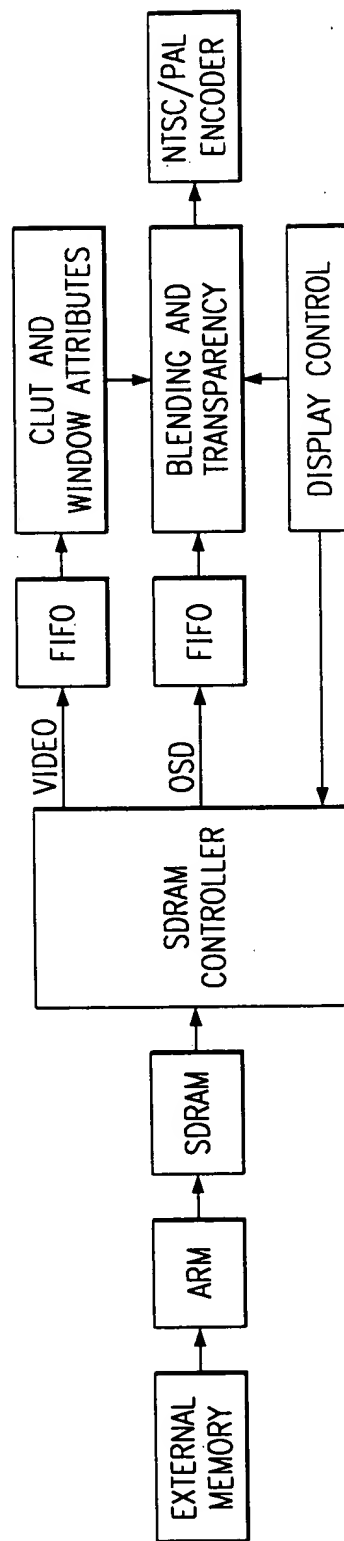
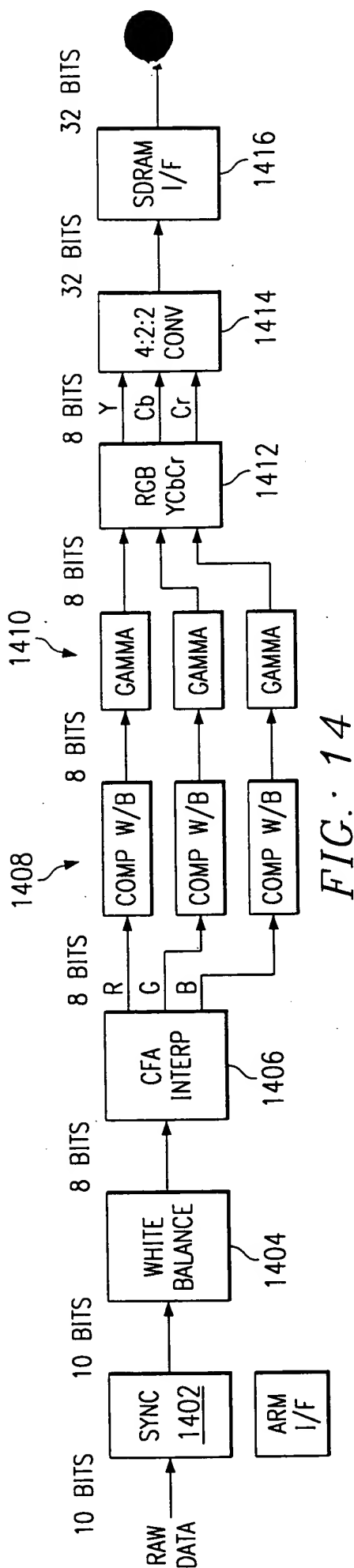


FIG. 13a



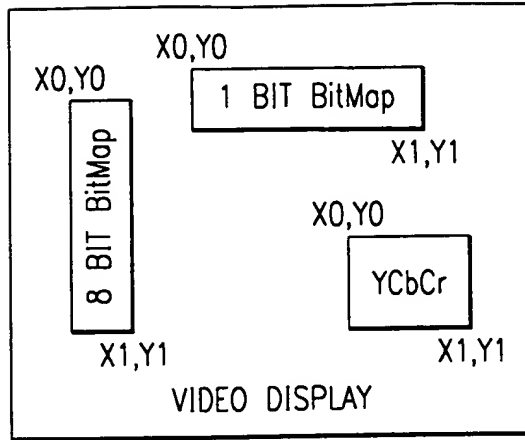


FIG. 16

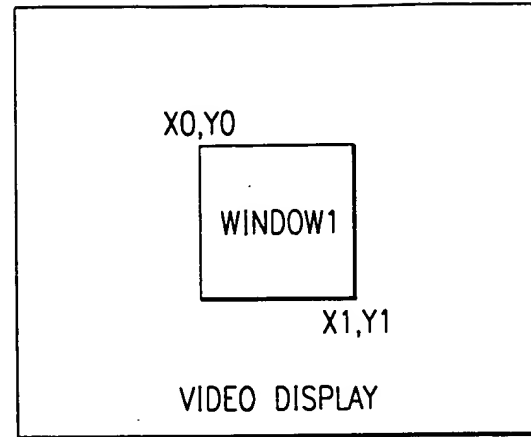


FIG. 17

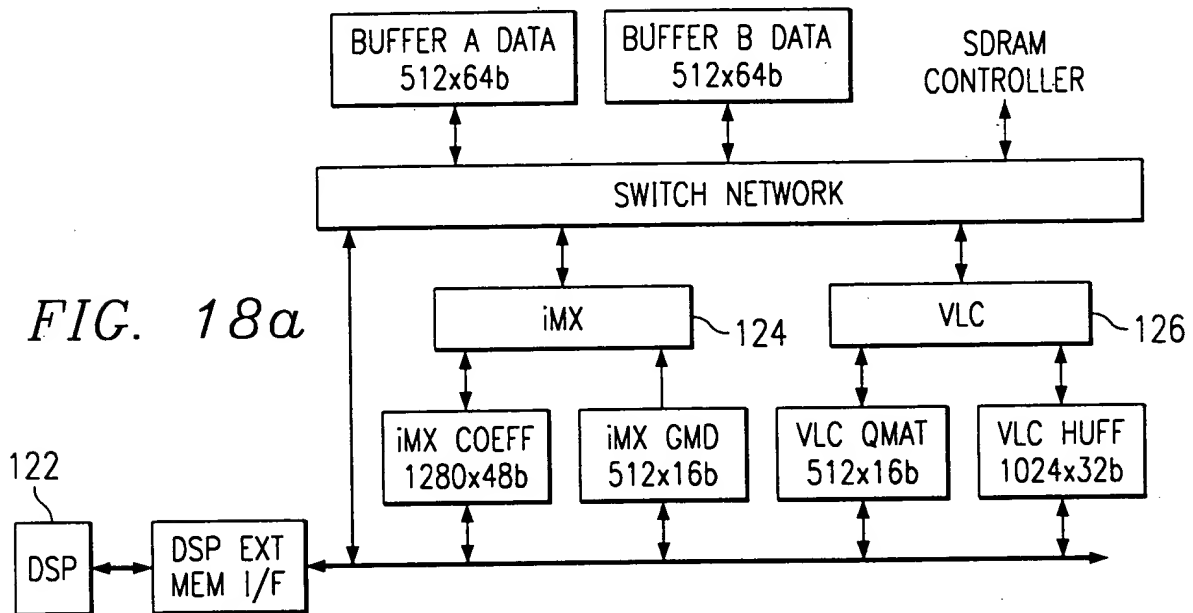
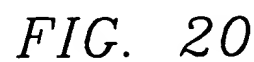
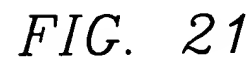
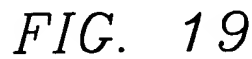


FIG. 18a

PROGRAM SPACE (MP/MC_=0)		DATA SPACE	
0000h	RESERVED (OVLY=1)	0000h	MMR
0080h		0060h	
	ON-CHIP 32kword DARAM (OVLY=1)	0080h	SCRATCH-PAD RAM
7F80h			ON-CHIP 32kword DARAM (OVLY=1)
8000h	VECTORS	7F80h	RESERVED
C000h	EXTERNAL	8000h	
		C000h	EXTERNAL
	RESERVED		
FF80h			RESERVED
FFFFh	RESET VECTOR	FFFFh	

FIG. 18b



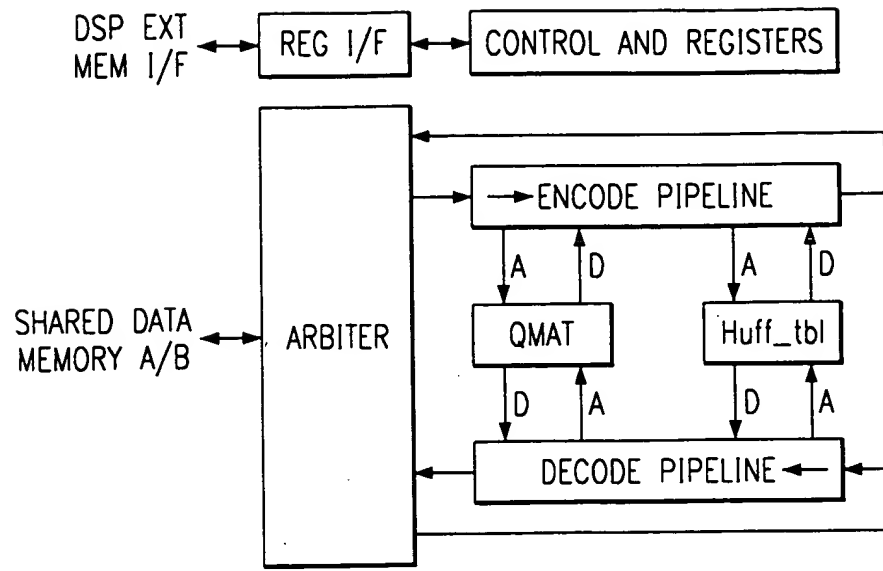


FIG. 22

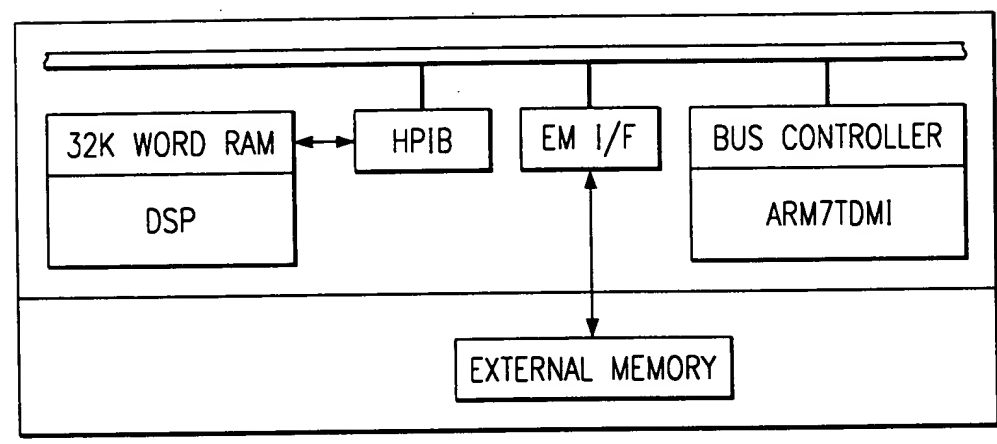


FIG. 23a

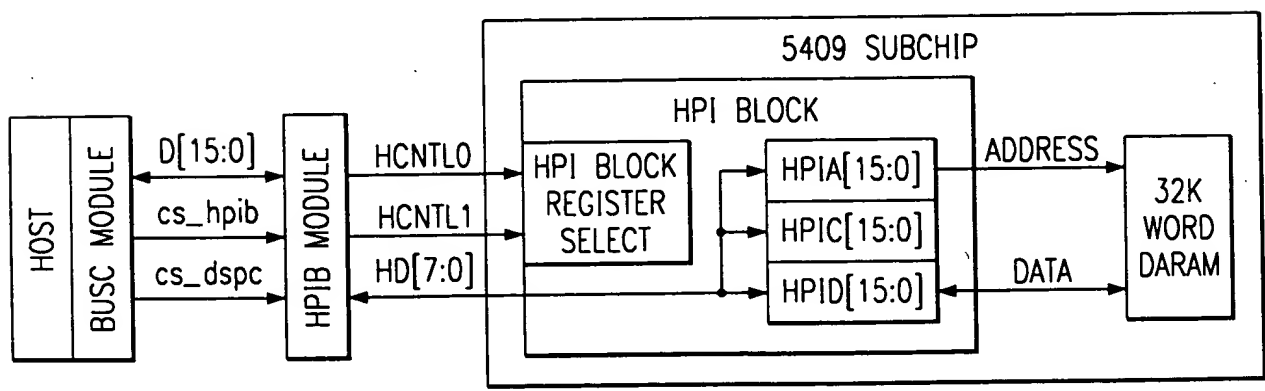


FIG. 23b

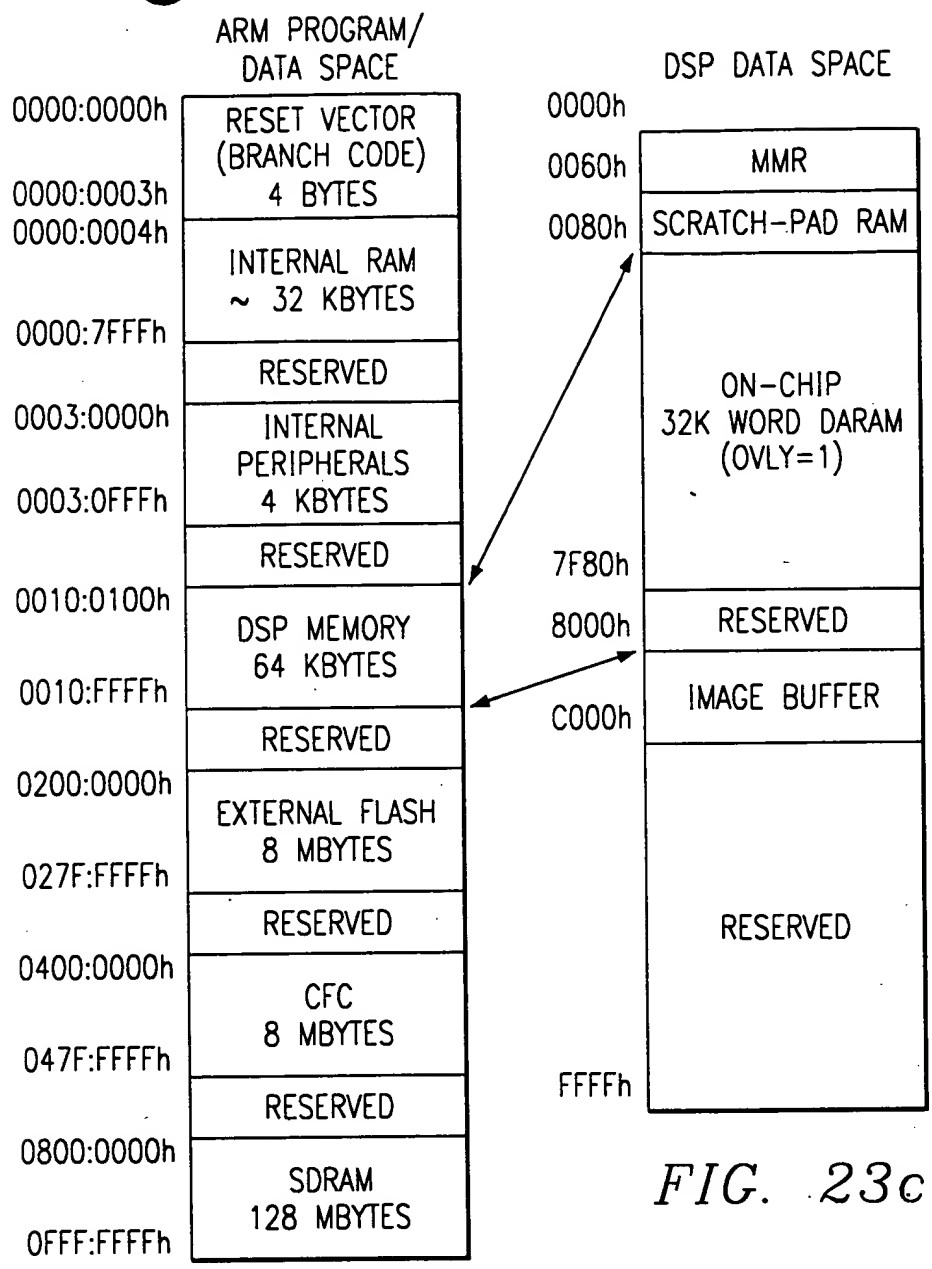
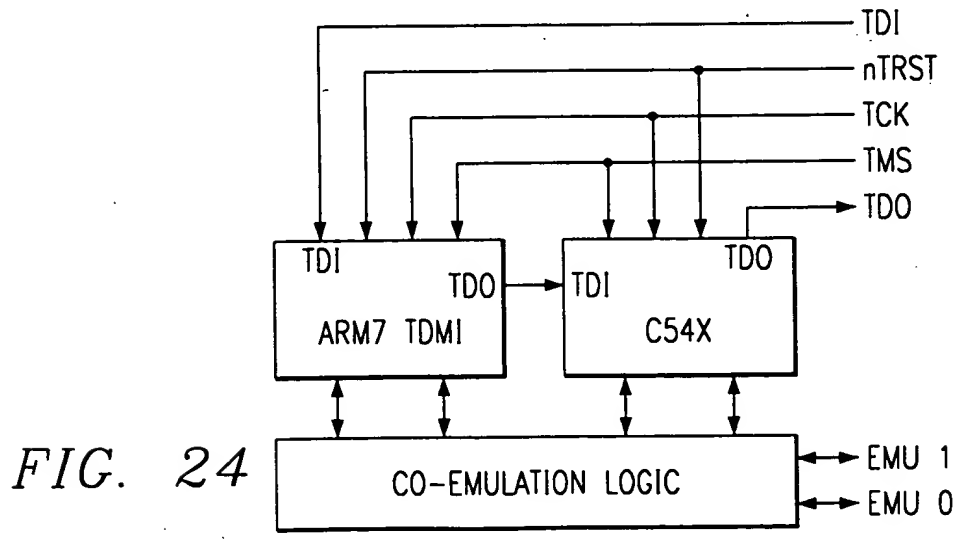


FIG. 23c



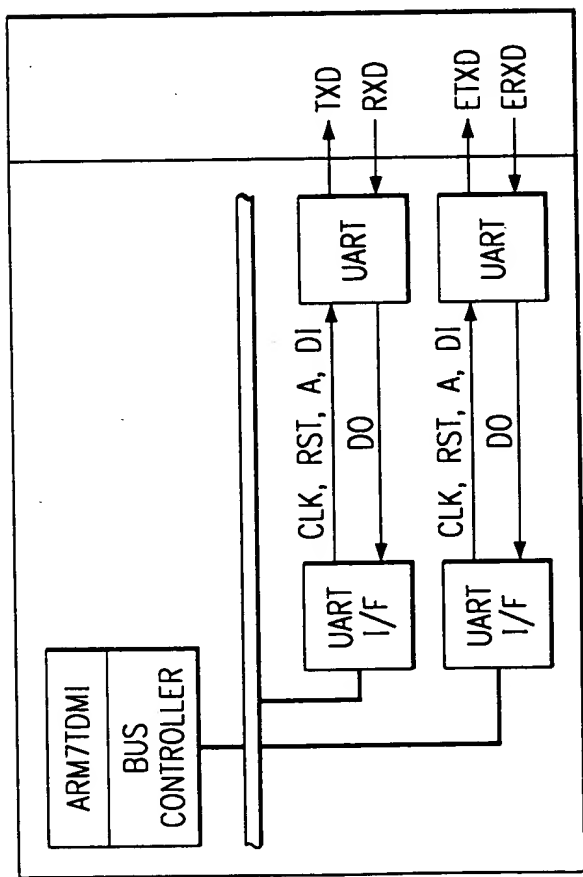


FIG. 25

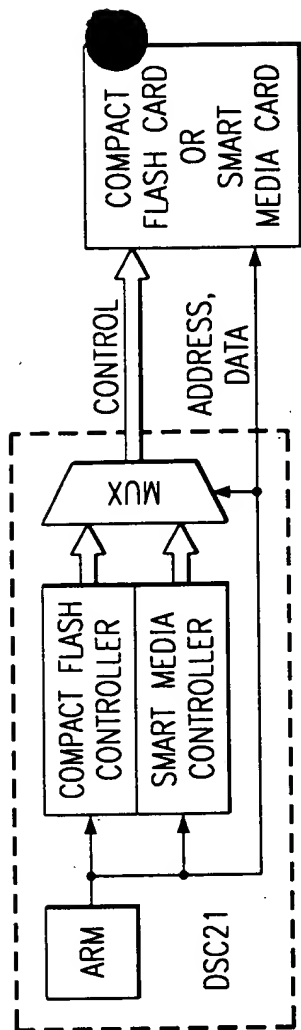


FIG. 26

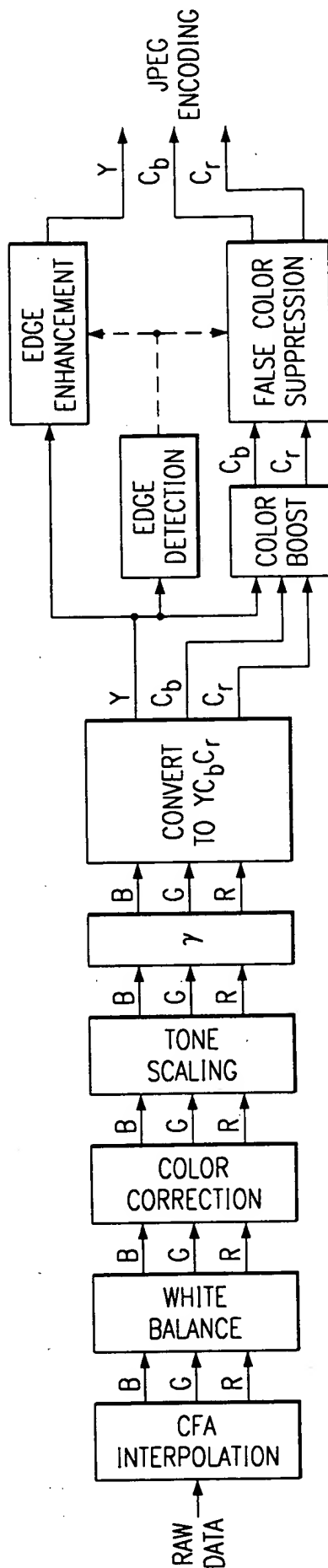


FIG. 27



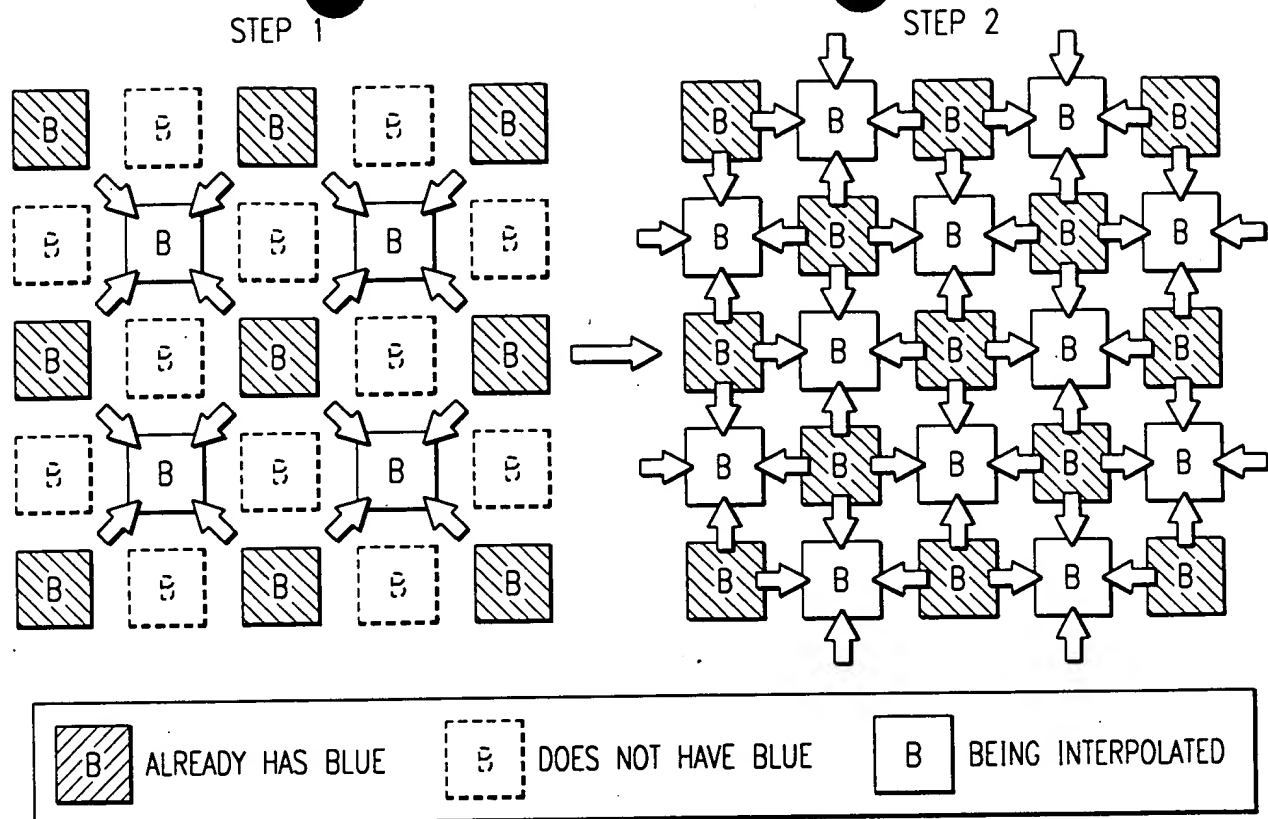


FIG. 28

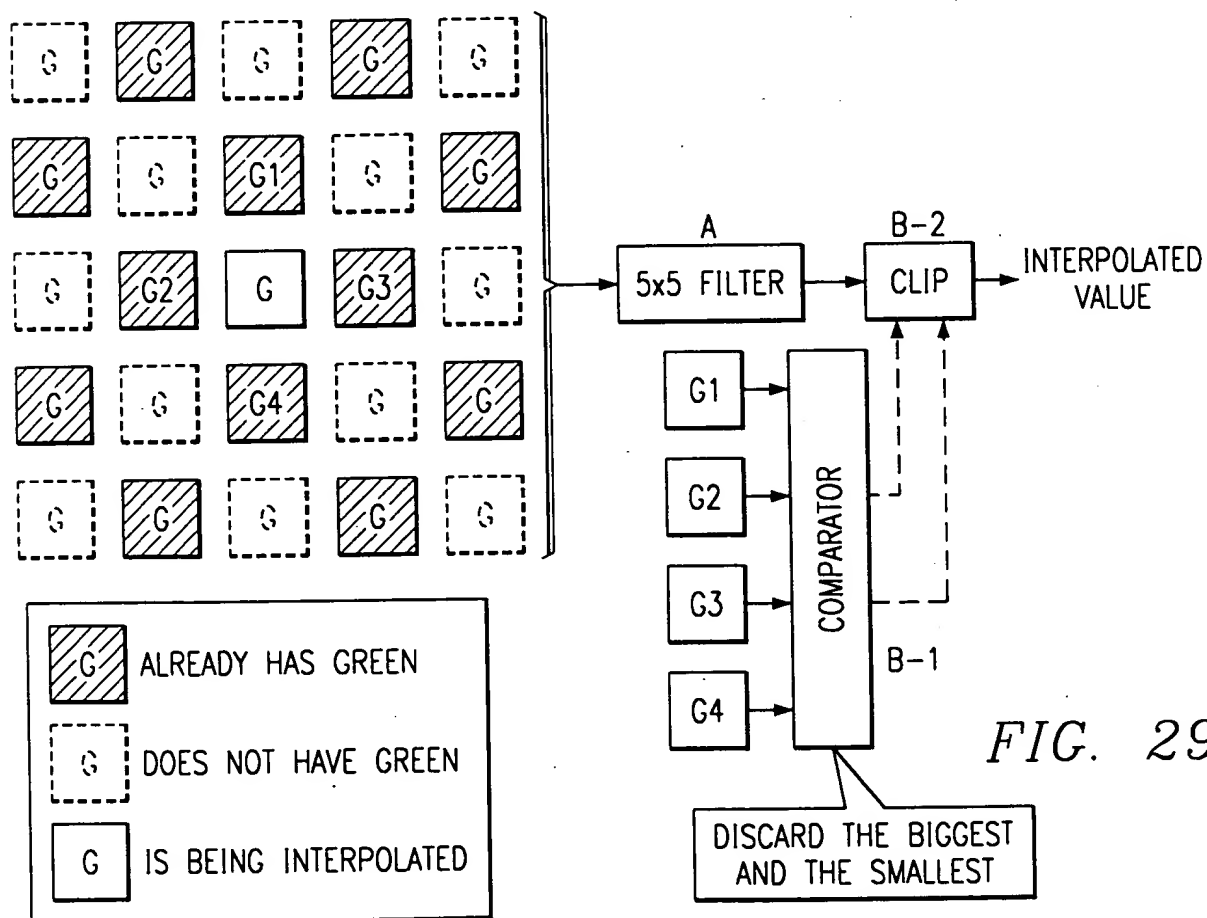
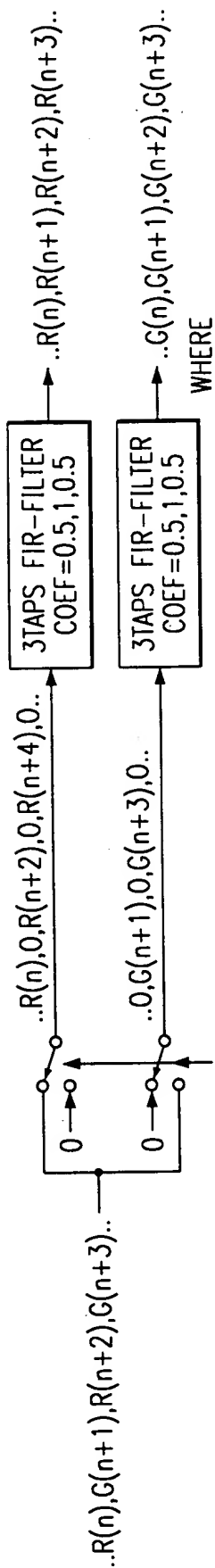
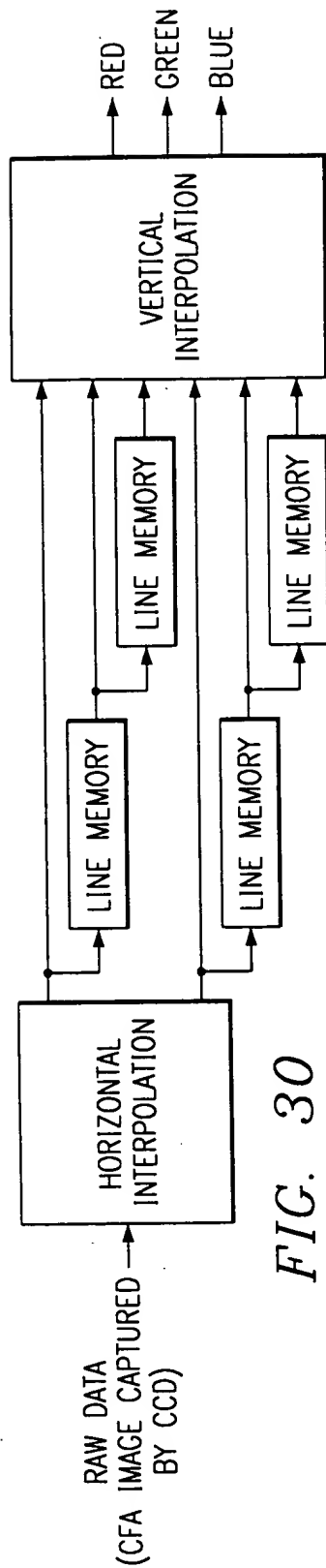
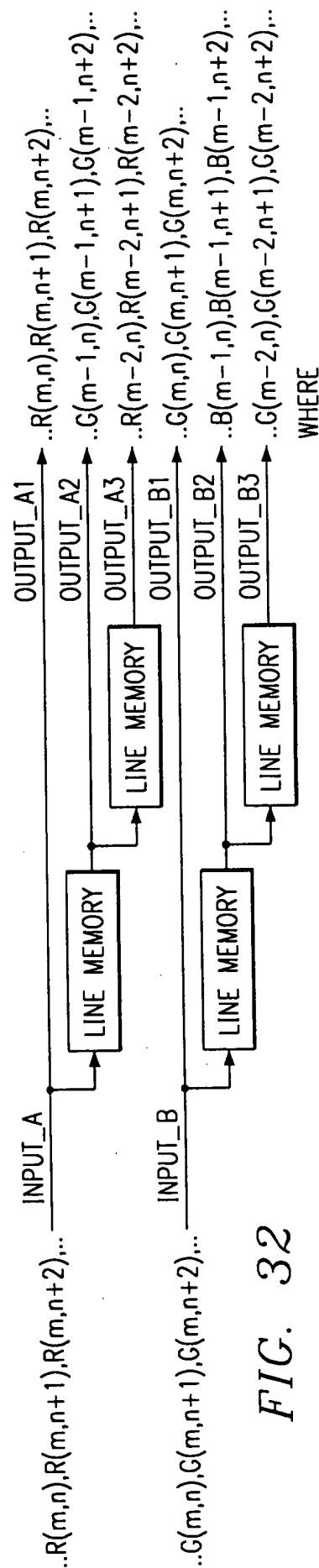


FIG. 29



$$\begin{aligned} R(n+1) &= (R(n) + R(n+2))/2 \\ G(n+2) &= (G(n+1) + G(n+3)) \end{aligned}$$



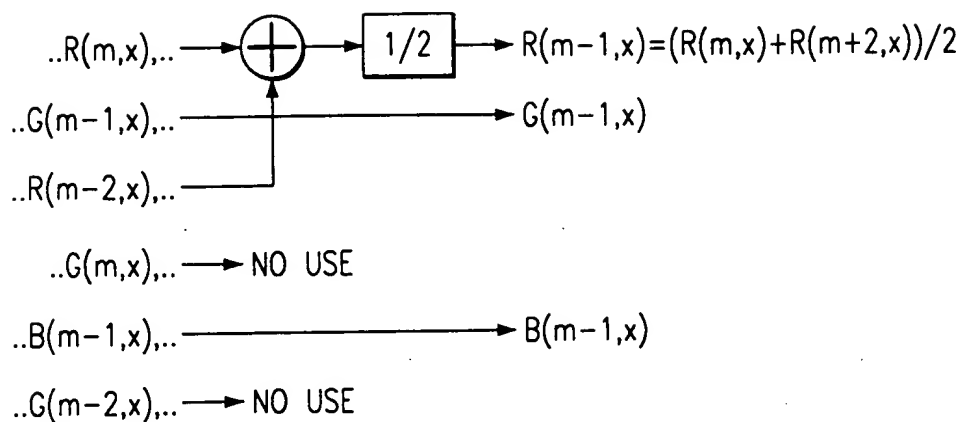


FIG. 33a

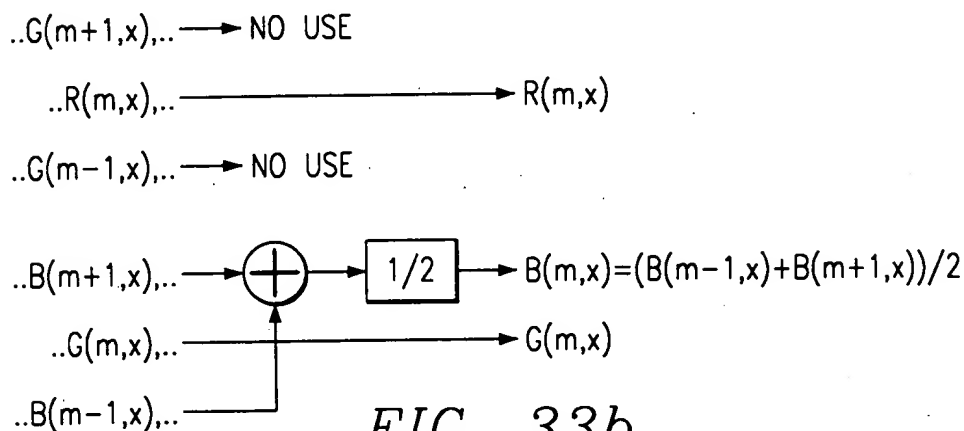


FIG. 33b

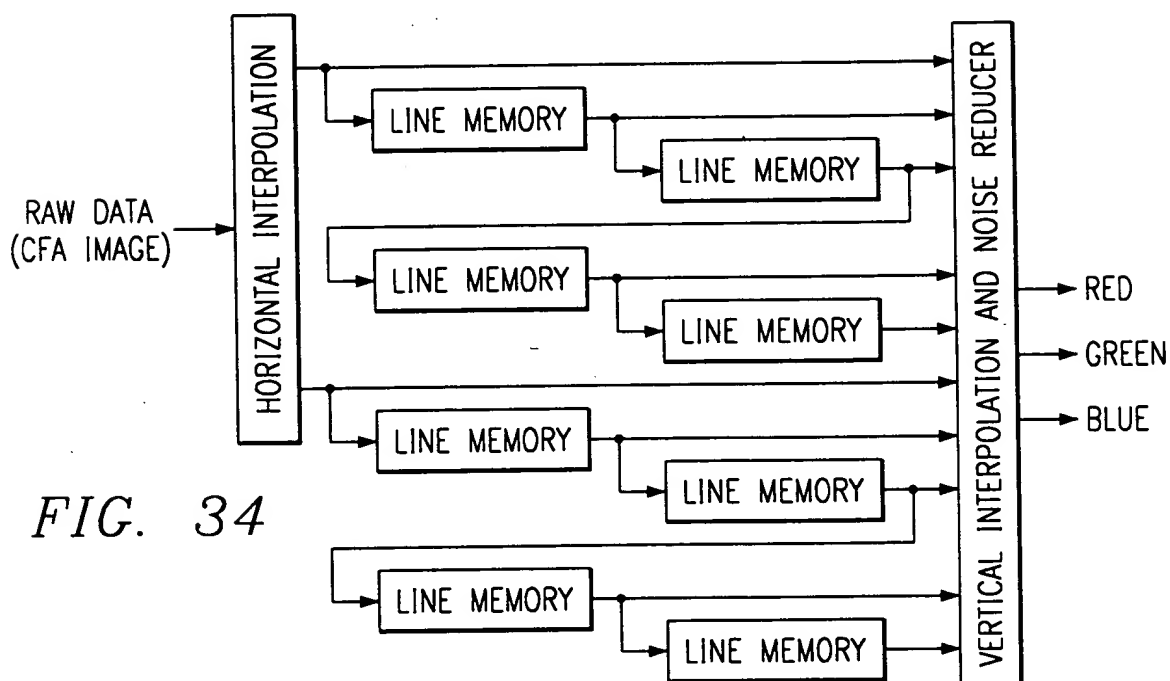
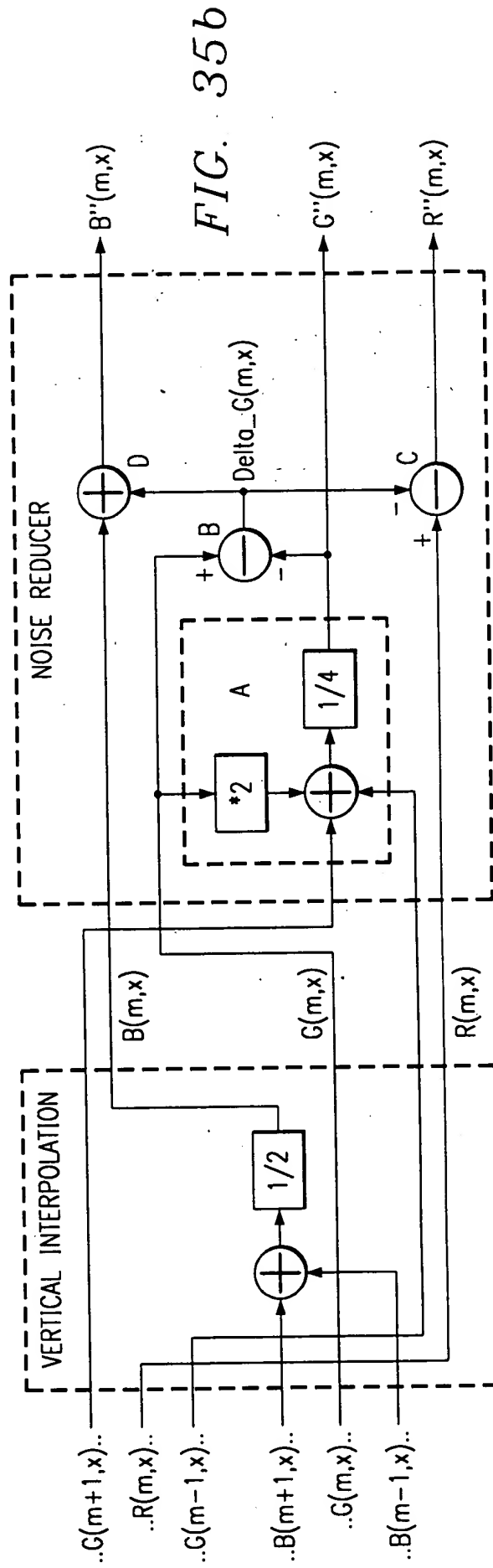
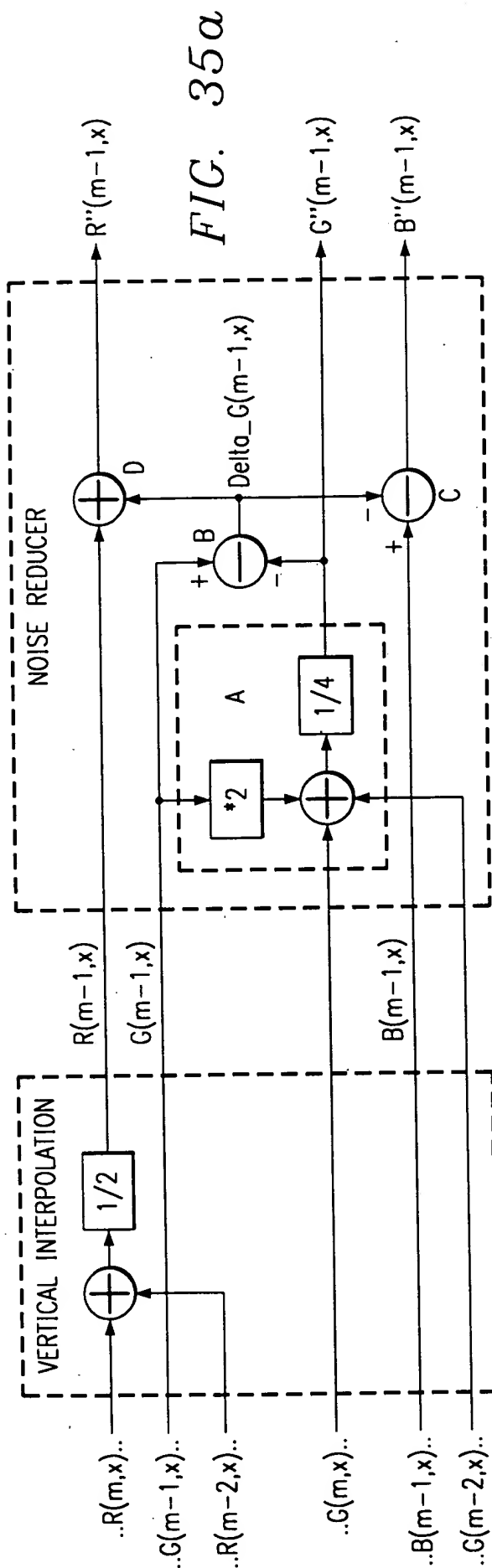
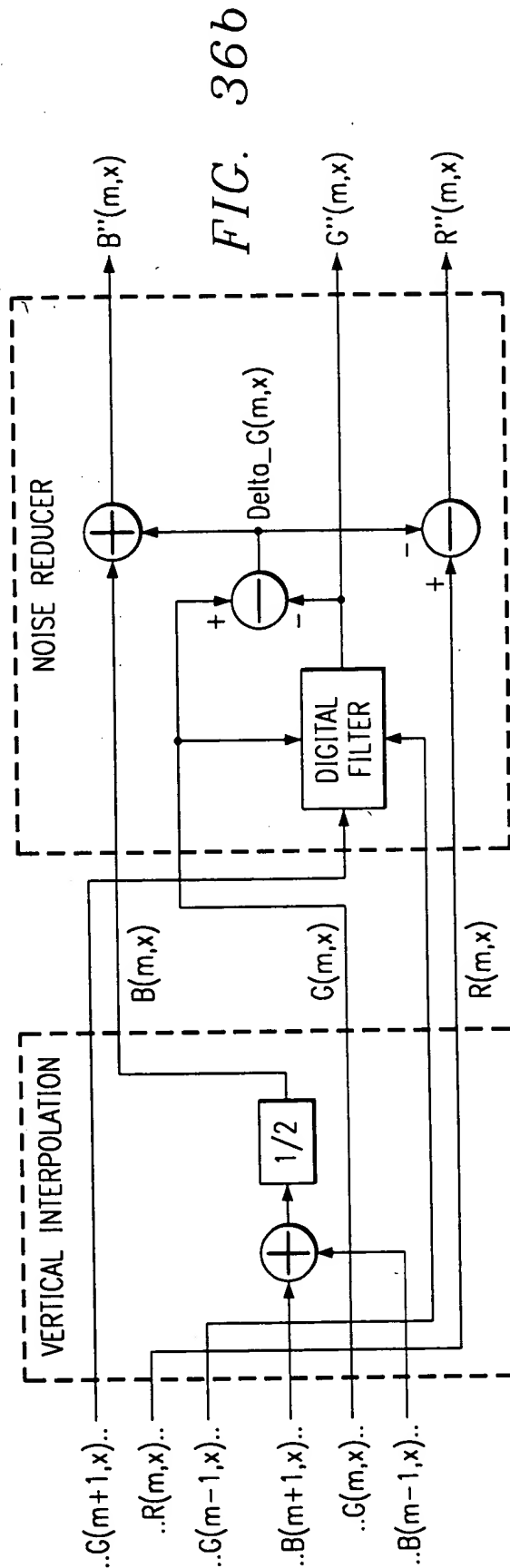
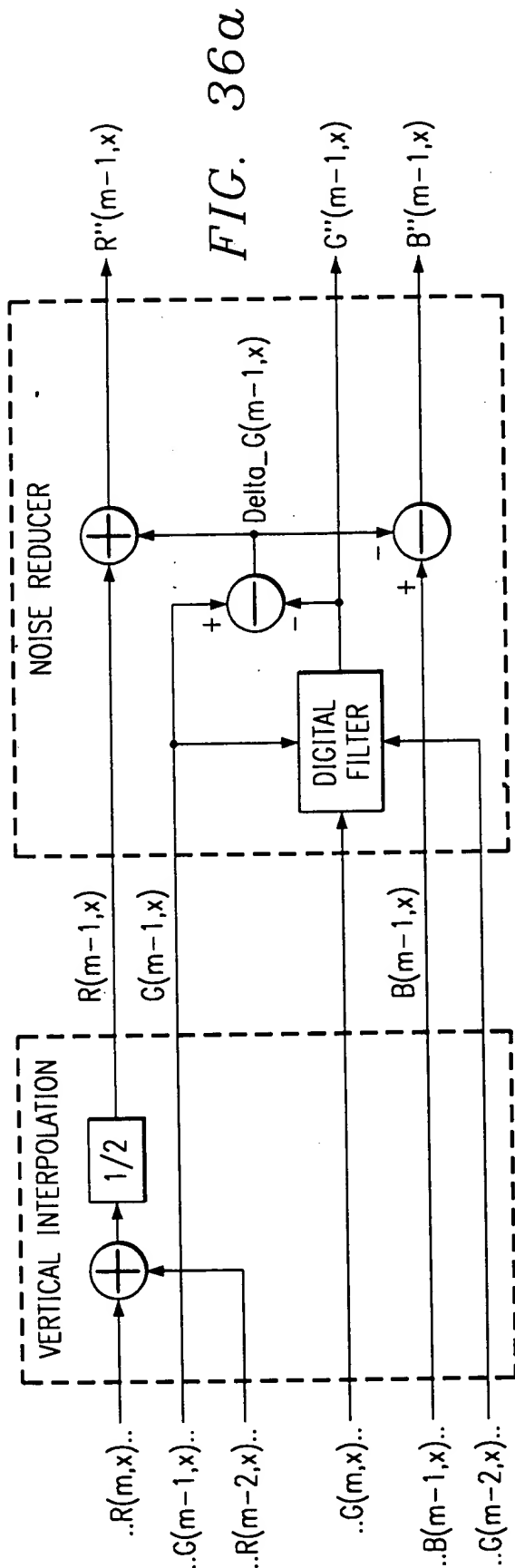


FIG. 34





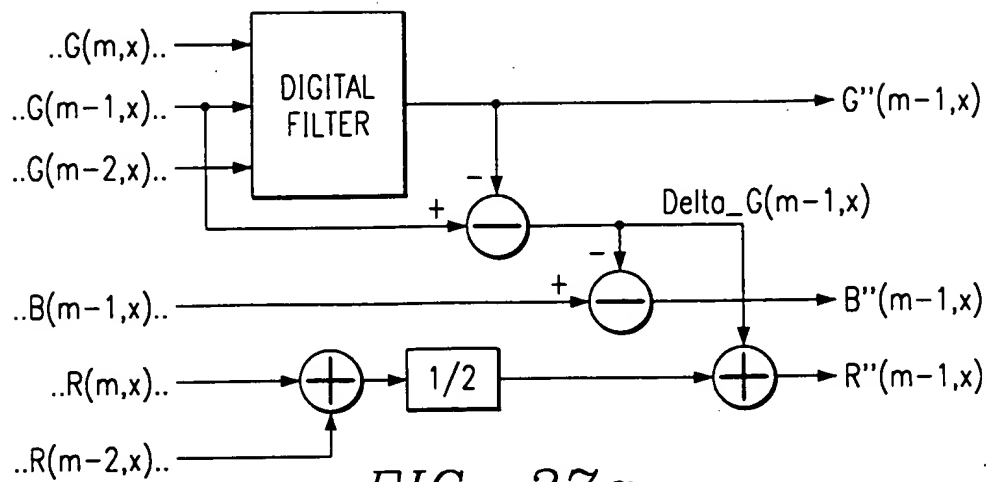


FIG. 37a

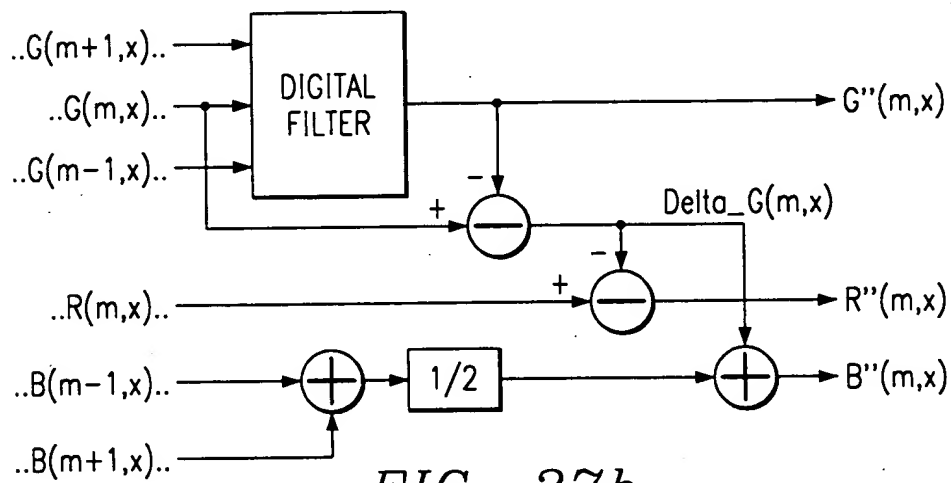


FIG. 37b

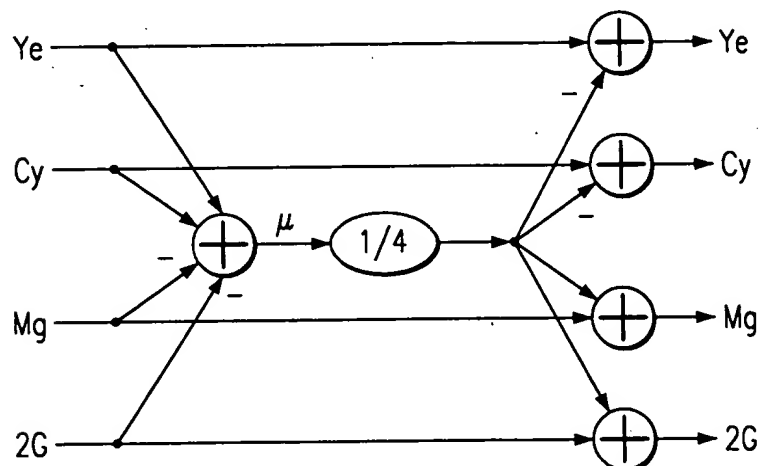
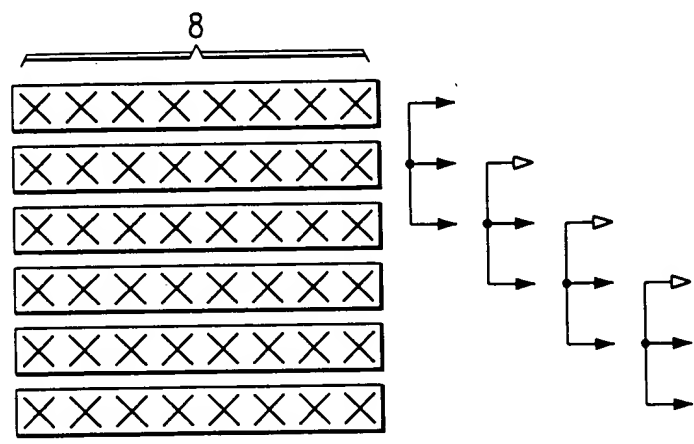
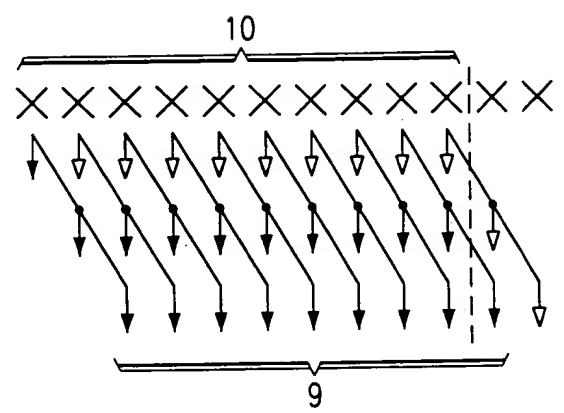
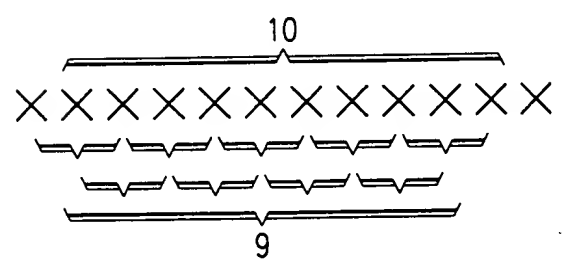
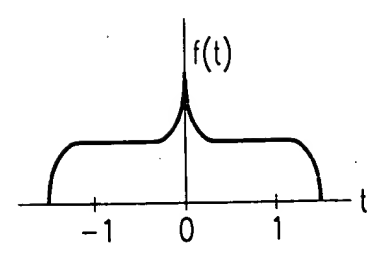
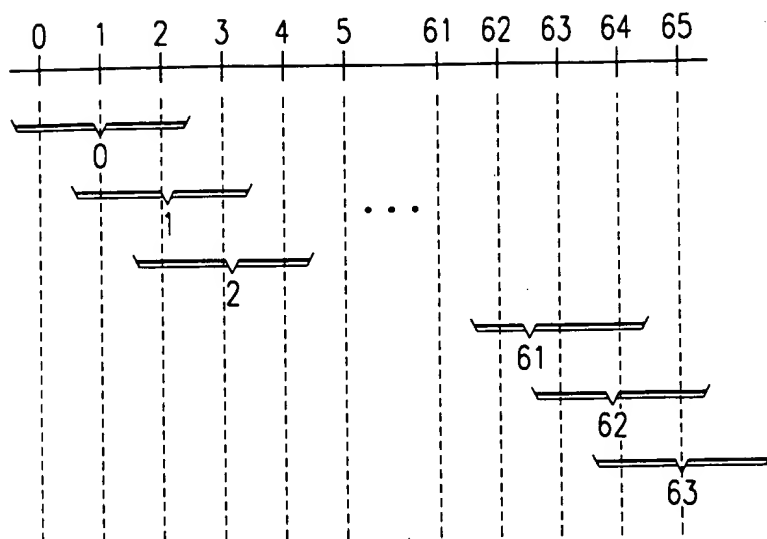


FIG. 38

FIG. 39a

FIG. 39b

FIG. 40





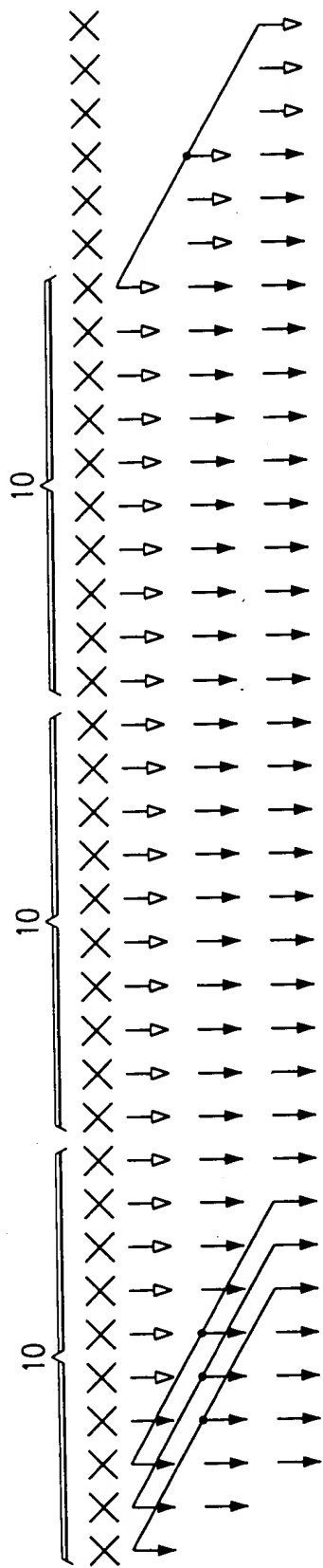


FIG. 42c

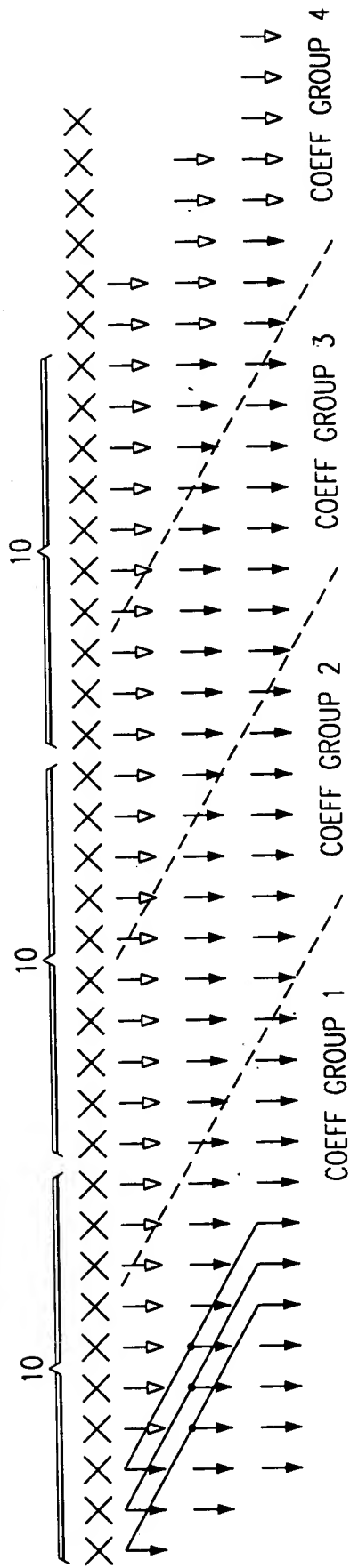


FIG. 42d

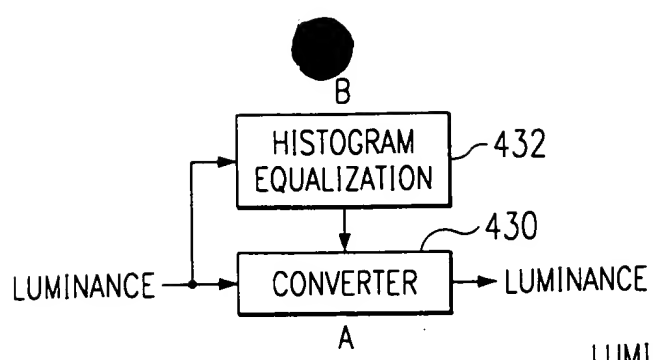


FIG. 43

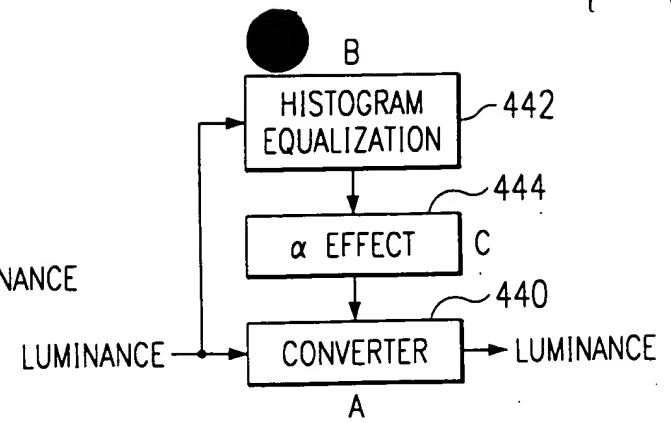


FIG. 44

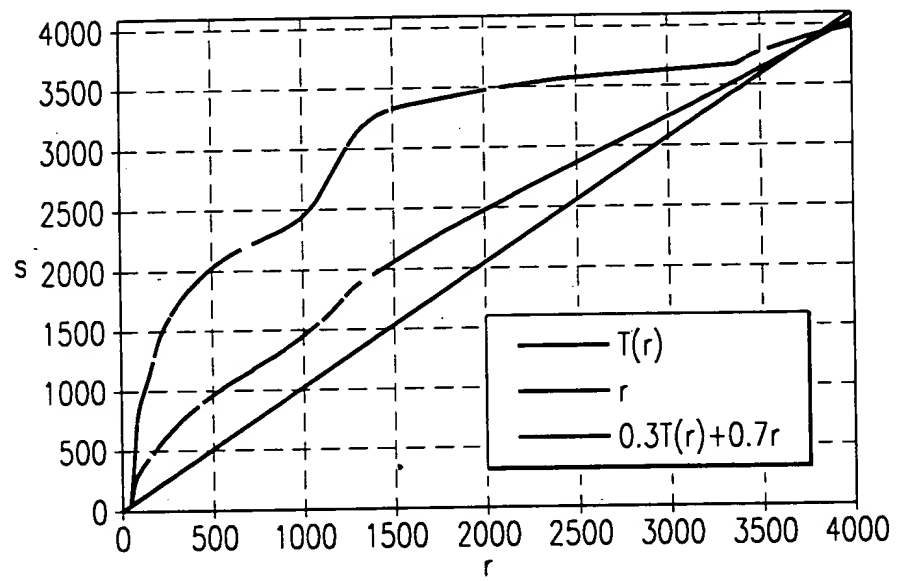


FIG. 45

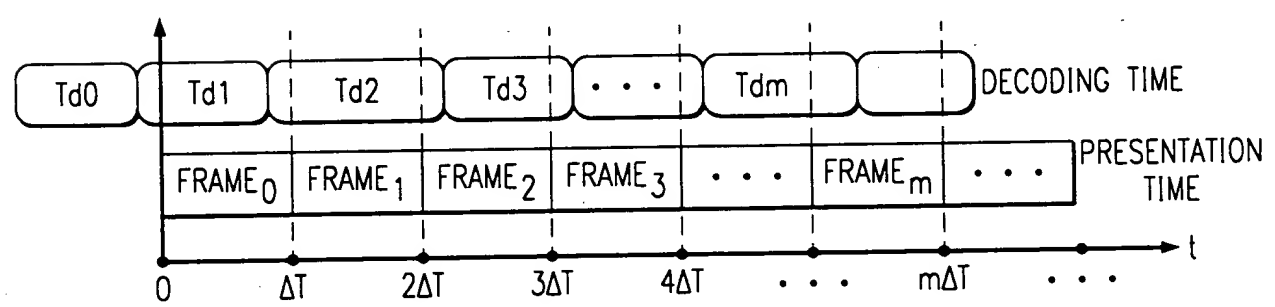


FIG. 46a

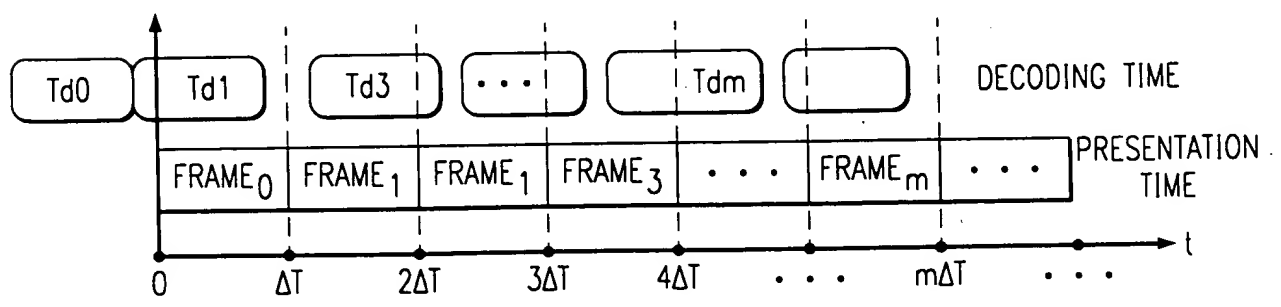


FIG. 46b

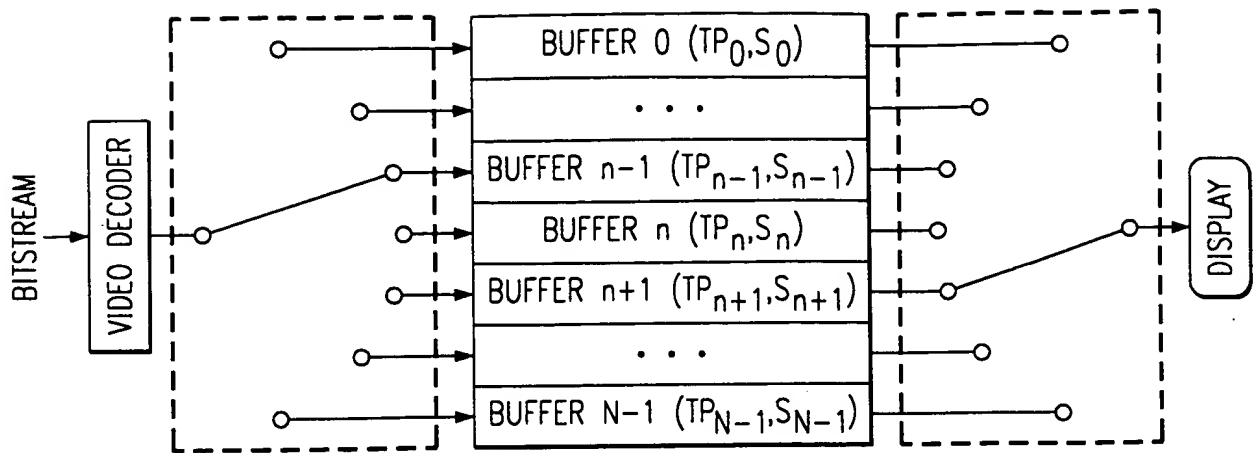


FIG. 47

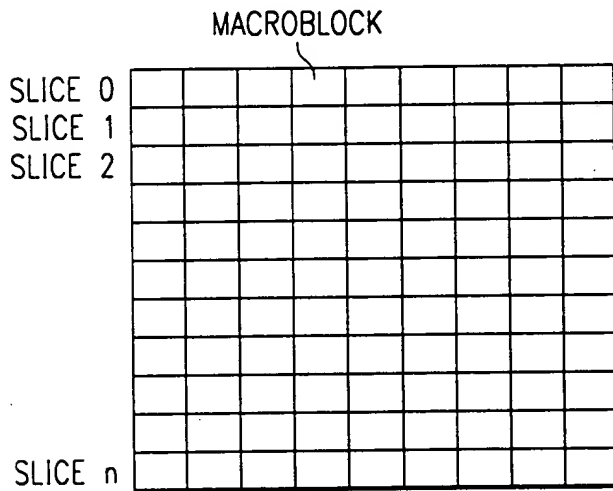


FIG. 49

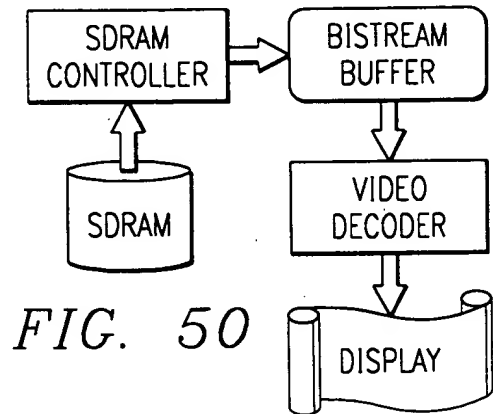


FIG. 50

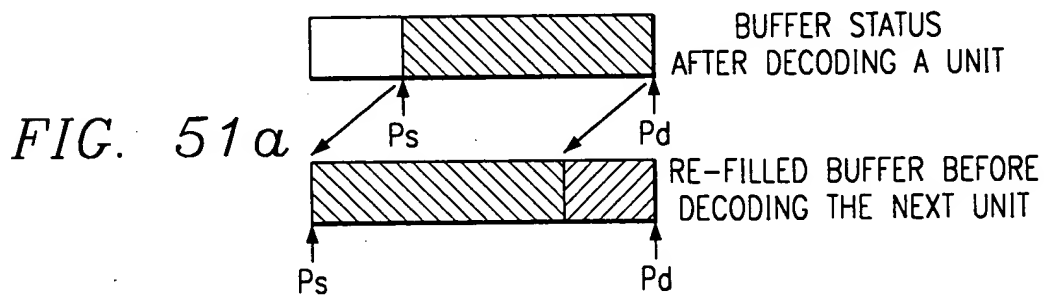


FIG. 51a

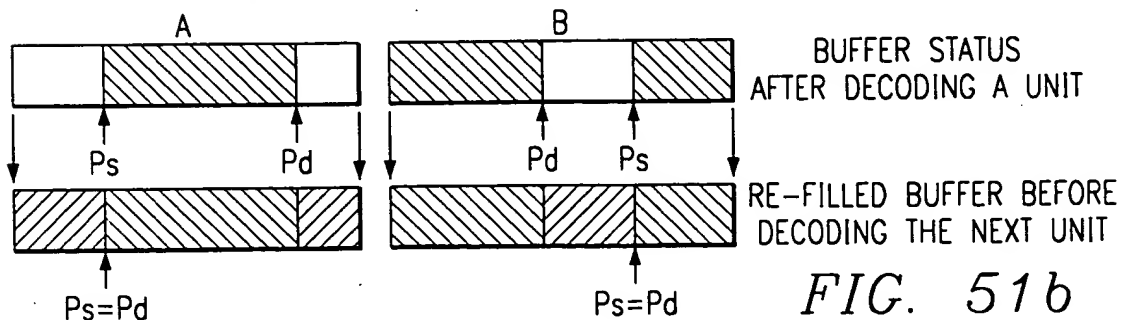
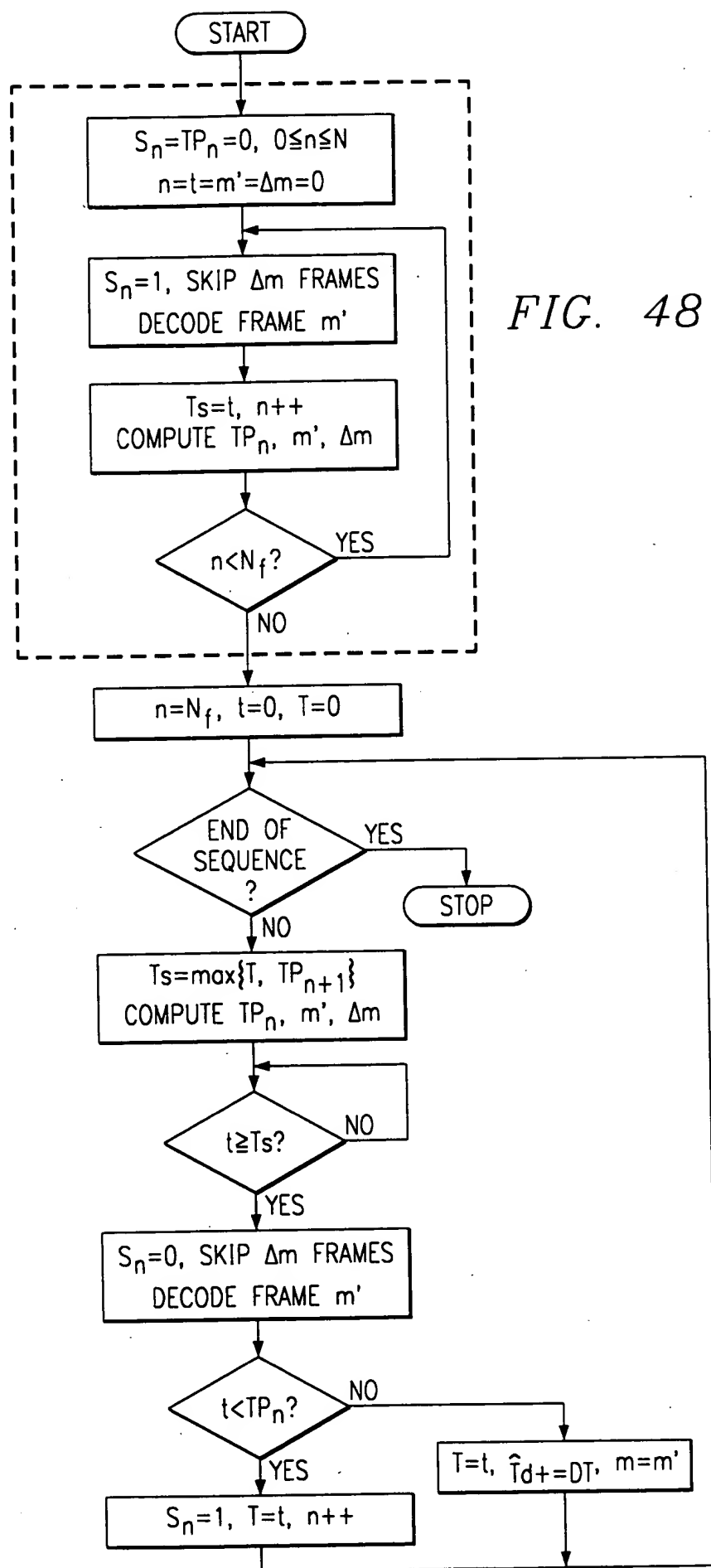


FIG. 51b



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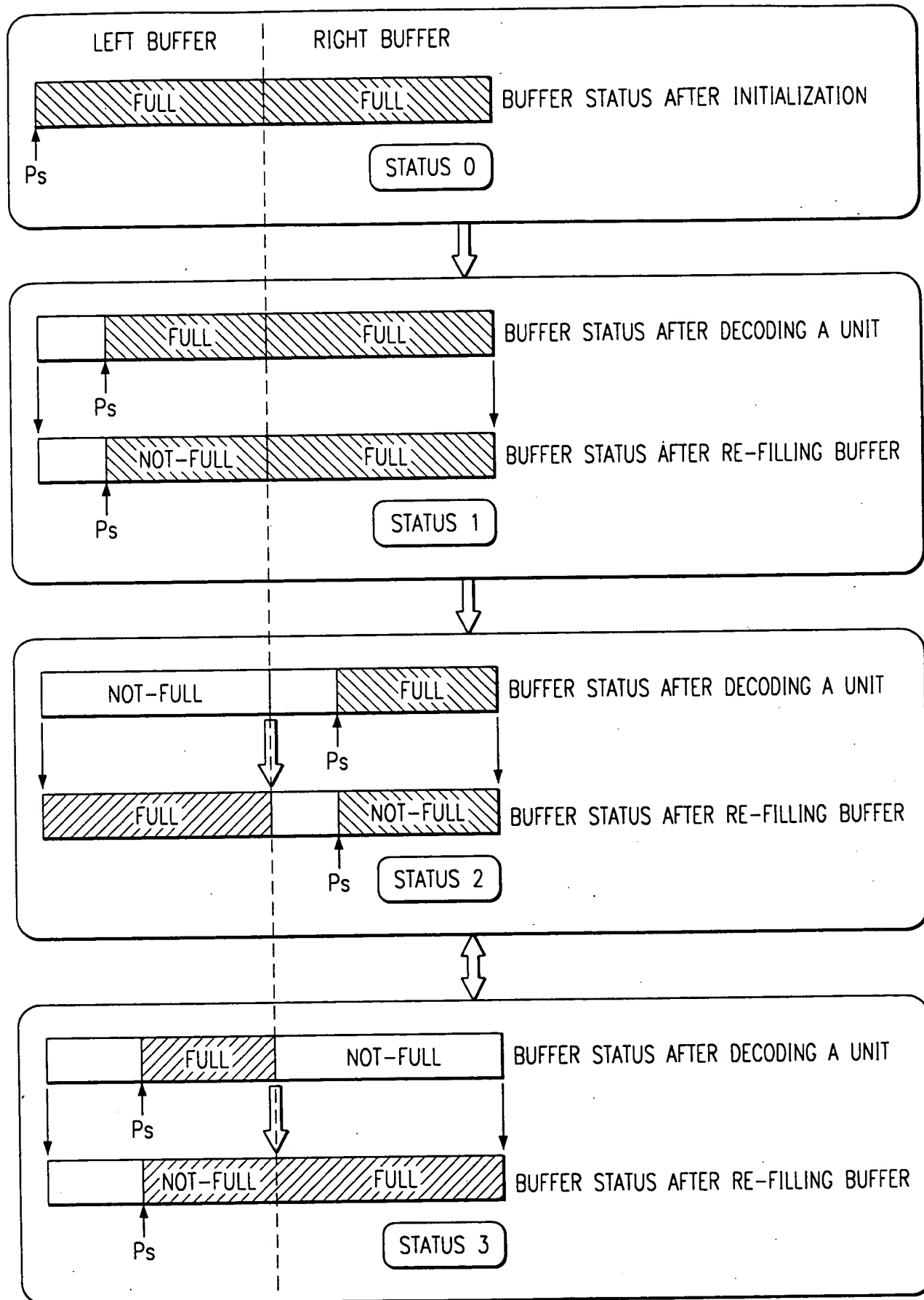


FIG. 52